REMARKS

Applicants believe no new matter is added by these amendments to the specification and claims. Claims 1-51 have been canceled. After entry of the present amendments, Claims 52-70 will remain in this application.

Amendments to the specification. The addition of the paragraph at page 1, line 13, indicates a research agreement between the present assignee, Mendel Biotechnology, Inc. and --Monsanto Company-- (Applicant had previously identified the latter as "Monsanto Corporation".

The amendment to add SEQ ID NOs, to the figures, and SEQ ID NOs: 431-704 is supported by the Figures as filed.

Amendments to the claims.

Support for 85%, 90% and 95% identity to the presently claimed polypeptides is provided on, for example, page 55, lines 1-7.

Support for a "nucleic acid construct" is provided, for example, on page 68, lines 20-21 or on page 108, line 9.

Response to specific items within the Office action.

Item 5. Applicant has attached figures with SEQ ID NOs. added in parentheses. The newly added sequences in the Sequence Listing correspond to sequence derived from the figures.

Priority. Applicant is investigating the date a transgenic plant transformed with a nucleic acid construct comprising G922 (SEQ ID NO: 3 and 4) was reduced to practice. Applicant does wish to call to the Examiner's attention US provisional application 60/125,814, filed March 23, 1999 (Applicant believes this constitutes a reduction to practice before the April 1999 publication of the Pysh reference) which is claimed as priority application. Application 60/125,814, which is entitled "Constructs for Phenotype Alteration"; discloses sequences that relates to "recombinant constructs for the regulation of gene expression in plants and for effecting changes in plant phenotype" ("Field of the Invention"). This application provides methods for transforming plants (see for example, Example IV on page 59) and includes the G922 DNA and protein sequences in the "family_9" list of sequences. Applicant notes that there are several inventors in common between Application 60/125,814 and the present application.

Items 7-8. Rejection under 35 USC 112, first paragraph, enablement.

Applicant believes the amendment of the present claims avoids this rejection.

The newly added claims are supported by the specification as described above and in the response filed 13 June 2006.

Applicants identified numerous closely related sequences with less than 85% identity to SEQ ID NO: 4. These sequences derive from both monocots and dicots, indicating that the sequence and likely the function of these related sequences are well conserved, that functional molecular species exist in abundance in nature, and that it is thus be a matter of routine to find other closely related sequences and test them in plants.

The Wands factors weigh in Applicants' favor

At the time the instant application was filed, "the state of the art" and "the relative skill of those in the art favored Applicants' arguments and claims, as evidenced by the prior art teachings and Applicants' specification. The amount of experimentation to practice the full scope of the claimed invention might have been extensive, but it would have been routine. The techniques necessary to do so were well known to those skilled in the art. See, e.g., Johns Hopkins Univ. v. Cellpro, Inc., 152 F.3d 1342, 1360, 47 USPQ2d 1705, 1719 (Fed. Cir. 1998) ("test [for undue experimentation] is not merely quantitative . . . if it is merely routine").

Enablement is a legal standard of whether a patent enables one skill in the art to make and use the claimed invention. Raytheon v. Roper, 724 F.2d 951, 960, 220 USPQ 592, 599 (Fed. Cir. 1983) and is not precluded even if some experimentation is necessary. Nothing more than objective enablement is required, and therefore it is irrelevant whether this teaching is provided though broad terminology or illustrative examples. *In re. Marzocchi*, 439 F2d 220, 223, 169 USPQ 367, 369 (CCPA 1971). An analysis of whether the claims are supported by an enabling disclosure requires a determination of whether that disclosure contained sufficient information regarding the subject matter to enable one skilled in the pertinent art to make and use the instant transgenic plants. It is a matter of routine to use bioinformatics-based analysis to find SCR sequences related to SEQ ID NO: 4 that have a minimum percentage identity to a defined subsequence, then transform plants with the sequences and test the plants in order to find operable species. Once found, the presence of SCR conserved domains are putative indicators of function. It is a matter of routine to clone sequences identified on the basis of having the claimed conserved domains into nucleic acid constructs, transform and then test plants using routine assays. The artisan could rely on art-recognized methods to perform these tasks and specifically could use methods provided in the specification.

Art-practiced methods also include "shuffling", disclosed in U.S. patent 5,837,458 to Minshull and Stemmer, U.S. patent 6,579,678 to Patten and Stemmer, and others. These references provide

techniques for mutagenizing individual sequences that are part of a larger set, and the individual sequences are then tested by "screening or selecting the plurality of recombined nucleic acids to identify one or more evolved polynucleotides with the desired property" (U.S. patent 6,579,678, Claim 1). As indicated by these and other publications, the experimentation of making the claimed nucleic acids is considered routine.

The pending Office action analysis also fails to take into account the fact that proteins can be mutated to a significant degree and at multiple sites and maintain a biological function. The pending Office action analysis fails to take into account that, in addition to the art-recognized methods that may be used to produce the claimed plants, the specification provides extensive guidance for screening sequences, lists functional species, lists species predicted to function, and describes how to: (1) find sequences with SCR conserved domains with a specified degree of homology with similar subsequences in SEQ ID NO: 4; (2) calculate the percent identity between the second conserved domain of SEQ ID NOs: 4 and the newfound sequence; and, as necessary, (3) test the newfound sequence to determine if it functions as is presently claimed. Guidance for performing these steps is provided, the methods are well known, and functional species are disclosed. Ample guidance is therefore provided to allow one of skill in the art to identify additional functional sequences. The amount of experimentation necessary and the amount of guidance presented in the specification are sufficient to allow the skilled artisan to practice the methods and make the plants set forth in the claims.

The instant claims are similar to claims presented in a Precedential Opinion before the Board of Patent Appeals and Interferences

Regarding its publication of Precedential Opinions, "The United States Patent and Trademark Office is increasing the transparency of Board of Patent Appeals and Interferences decision making by increasing the number of Board opinions that may be cited" (OG Notices: 23 January 2007).

In the Precedential Opinion of Appeal No. 2007-0819, Application 09/667,859 (decided May 31, 2007) before the Board of Patent Appeals and Interferences, claim 73 (the "exemplary claim" in this analysis) and others were rejected for lack of enablement. Claim 73 reads:

"An isolated nucleic acid molecule comprising a polynucleotide encoding a polypeptide at least 80% identical to amino acids 22-221 of SEQ ID NO:2, wherein the polypeptide binds CD48."

Applicants note that the exemplary claim 73 is similar to the instant claims in that a specific percent identity to a region of a sequence is being claimed, albeit a lower percentage identity than that which is instantly claimed.

The Opinion of Appeal indicates that: "The Examiner found lack of enablement due to the "at least 80% identity language," in the absence of any working examples, other than SEQ ID NOs:1 and 2. He cites examples in the literature in which very small changes in sequence, even one amino acid, yield a different function."

The exemplary specification discloses amino acid sequences for three proteins whose nucleotide sequences would fall within the scope of claim 73. The instant specification provides many related functional polypeptide sequences (see Table 1) that extend the scope of the claimed sequences beyond what is presently being claimed. Applicants are entitled to claim less than the invention originally presented.

Similar to the exemplary specification, the instant specification does not disclose variants in which the nucleotide sequence encoding amino acids 22-221 of SEQ ID NO: 2 is varied. Thus, "the Specification does not disclose "which 20% . . . of amino acid residues should be changed in order to maintain the biological functions' ". However, the instant specification does provide numerous closely related sequences from which it can be determined where corresponding amino acid variations can be tolerated and where they are strongly conserved.

Similar to the exemplary specification, the instant specification "teaches in detail how to: 1) make variants of SEQ ID NOs: 1 and 2; 2) calculate the percent identity between SEQ ID NOs: 3 and 4 and the variant sequence; and 3) test the variant sequence.

The exemplary specification does not disclose a correlation between function and structure responsible for function "such that the skilled artisan would have known what modifications could be made of the very large number of modifications potentially encompassed by claim 73 without losing function". The instant specification does describe the SCR conserved domains; the closely related species provided have these domains..

At the time Appellants' application was filed, the level of skill in the relevant art (molecular biology) was high. Methods of making the claimed sequences and screening for activity were known in the art and described in the exemplary and the instant specification.

Similar to the exemplary application, the experimentation involved to produce other sequences within the scope of the claims" and thus to practice the full scope of the claims, would have been well within the skill of those in the art and thus would have been routine.

The Precedential Opinion also indicates "with respect to enablement, the other Wands factors weigh in Appellants' favor, particularly "the state of the art" and "the relative skill of those in the art," In re Wands, 858 F.2d 731, 736, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988), as evidenced by the prior art

teachings and Appellants' Specification". The amount of experimentation to practice the full scope of the claimed invention might have been extensive, but it would have been routine. The techniques necessary to do so were well known to those skilled in the art. See, e.g., Johns Hopkins Univ. v. Cellpro, Inc., 152 F.3d 1342, 1360, 47 USPQ2d 1705, 1719 (Fed. Cir. 1998).

The Opinion of Appeal concludes with "One of ordinary skill in the art would not have been required to perform undue experimentation to practice the invention of [exemplary] claim 73" to a polypeptide at least 80% identical to amino acids 22-221 of SEQ ID NO:2, wherein the polypeptide binds CD48. This is a very similar analysis as might be applied to the instant claims to a transgenic plant comprising a recombinant polynucleotide encoding a polypeptide at least 85% identical to amino acids 78-175 of SEQ ID NO: 2, wherein the expression of the polypeptide can confer the claimed traits.

In light of these amendments, arguments and experimental observations confirming Applicants' disclosure and claims, Applicants request that the rejection under 35 U.S.C. §112, first paragraph, for lack of enablement, be withdrawn.

Item 8. Rejection under 35 USC 112, first paragraph, written description.

Applicant believes the amendment of the present claims avoids this rejection under 35 U.S.C. §112, first paragraph.

The instant claims are similar to claims presented in the Written Description Training Materials

Applicants ask the Examiner to consider the Written Description Training Materials, Revision 1, March 25, 2008. Example 11 of the Training Materials describes a "specification [that] discloses a polynucleotide having the nucleic acid sequence of SEQ ID NO: 1, which encodes the polypeptide of SEQ ID NO: 2. The polypeptide of SEQ ID NO: 2 has the novel activity X, and does not share significant sequence identity with any known polypeptide or polypeptide family. The specification does not disclose any nucleic acid sequences that encode a polypeptide with novel activity X other than SEQ ID NO: 1". The following claims are made in this example:

Claim 1. An isolated nucleic acid that encodes a polypeptide with at least 85% amino acid sequence identity to SEQ ID NO: 2.

Claim 2: An isolated nucleic acid that encodes a polypeptide with at least 85% amino acid sequence identity to SEQ ID NO: 2; wherein the polypeptide has activity X.

The specification of this example " discloses only a single species that encodes SEQ ID NO: 2; i.e., SEQ ID NO: 1. There are no other drawings or structural formulas disclosed that encode either SEQ ID NO: 2 or a sequence with 85% identity to SEQ ID NO: 2." "The genetic code and its redundancies

were known in the art before the application was filed. The disclosure of SEQ ID NO: 2 combined with the pre-existing knowledge in the art regarding the genetic code and its redundancies would have put one in possession of the genus of nucleic acids that encode SEQ ID NO: 2. With the aid of a computer, one of skill in the art could have identified all of the nucleic acids that encode a polypeptide with at least 85% sequence identity with SEQ ID NO: 2. Thus, one of ordinary skill in the art would conclude that the applicant was in possession of the claimed genus at the time the application was filed" (emphasis added).

"The specification satisfies the written description requirement of 35 U.S.C. 112, first paragraph, with respect to the scope of claim 1" (Conclusion, on page 38, ¶2)

With regard to Claim 2 of the example in the Training Materials, "the specification discloses data from deletion studies that identify two domains as critical to activity Y, i.e., a binding domain and a catalytic domain. The specification proposes that conservative mutations in these domains (e.g., one basic amino acid substituted for another basic amino acid) will still result in a protein having activity Y, whereas most non-conservative mutations in these domains will not result in a polypeptide having the recited activity. The specification also proposes that most mutations, conservative or non-conservative, outside the two domains will not affect activity Y to any great extent."

Please contrast this example with the instant application, where there are, not two, but three conserved domains disclosed. See, for example, Table 1 on page 35, beginning with the last row on this page" 4...G922", "1st SCR: 400-597", "2nd SCR: 994-1203", and "3rd SCR: 1213-1434". The present specification also discloses numerous closely related polypeptide species, also found in Table 1 on page 35. Applicants describe how "A polypeptide sequence variant may have "conservative" changes, wherein a substituted amino acid has similar structural or chemical properties" on page 18, lines 4-6. Table 4 on pages 64-65 list conservative substitutions that might be made "when it is desired to maintain the activity of the protein" (page 64, lines 20-21). See also page 64, lines 4-6: "other conservative variations that alter one, or a few amino acids in the encoded polypeptide, can be made without altering the function of the polypeptide, these conservative variants are, likewise, a feature of the invention". Applicants also indicate how "consensus sequences, can not only be used to define the sequences within each clade, but define the functions of these genes" (page 52, lines 24-25). "Deliberate amino acid substitutions may thus be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity, and/or the amphipathic nature of the residues, as long as a significant amount of the functional or biological activity of the transcription factor is retained" (page 18, lines 6-8), "Guidance in determining which and how many amino acid residues may be substituted, inserted or deleted without abolishing functional or biological activity may be found using computer programs well known in the art, for example,

DNASTAR software" (page 18, lines 17-20), and "Substitutions that are less conservative than those in Table 5 can be selected by picking residues that differ more significantly in their effect on maintaining (a) the structure of the polypeptide backbone in the area of the substitution, for example, as a sheet or helical conformation" (page 66, lines 3-5). "The mutations that are made in the polynucleotide encoding the transcription factor should not place the sequence out of reading frame and should not create complementary regions that could produce secondary mRNA structure. Preferably, the polypeptide encoded by the DNA performs the desired function" (page 64, lines 14-18).

In light of these amendments, arguments and experimental observations confirming Applicants' disclosure and claims, Applicants request that the rejection under 35 U.S.C. §112, first paragraph, for lack of written description, be withdrawn.

Accordingly, Applicant respectfully requests that the rejection of the claims under 35 USC 112, first paragraph, for lack of written description, be withdrawn.

Item 12. Rejection under 35 USC 102 (b)

Applicant respectfully traverses the present rejection.

The Office action cites as a prior art reference Thomashow et al., US patent 5,065,705, taken with the evidence of Forugoux-Nicol et al. Applicant is understandably confused by this rejection for the following reasons:

US patent 5,065,705 is entitled " System for preventing overheat of engine for vehicle", which the Examiner must admit is unlikely to serve a ground for the present rejection. The rejection almost certainly intends to cite US patent 5,965,705, which is directed to overexpression of CBF proteins in plants. However, CBF is an AP2 transcription factor, and the instant claims are directed to SCARECROW family transcription factors. The latter is not closely related to the latter. There is no teaching of SCARECROW related genes in the Thomashow reference.

Furthermore, as this is a rejection under 35 USC 102 (b), Applicant believes that they conceived and constructively reduced to practice the claimed plants overexpressing G922, SEQ ID NO: 3 and 4, prior to the publication of the Thomashow patent in provisional application 60/125,814, as indicated above.

Accordingly, Applicant respectfully requests that the rejection of the claims under 35 USC 102(b) be withdrawn.

Item 14. Rejection under 35 USC 103 (a)

Applicant respectfully traverses the present rejection.

As indicated above, Applicant believes that they conceived and constructively reduced to practice the claimed plants overexpressing G922, SEQ ID NO: 3 and 4, prior to the publication of the Pysh reference in provisional application 60/125,814.

The sequence taught by Pysh is the same sequence as is found in the presently amended claims, since Pysh fails to teach a full length sequence that corresponds to SEQ ID NO: 4. Therefore, the reference cited in the Office action does not expressly anticipate or make obvious all of the elements of the claimed invention.

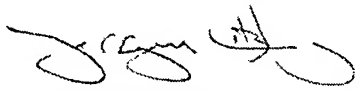
Furthermore, there is no teaching of transgenic plants in the Pysh reference, nor is there a motivation to produce transgenic plants in said reference. Mere disclosure of a sequence is insufficient grounds for establishing a prima facie case for obviousness. If that reasoning were to be held as a standard, the mere publication of a plant genome would preclude an inventor from obtaining any gene-based patent. This is, in fact, not the standard to which the courts or the USPTO adheres.

Accordingly, Applicant respectfully requests that the rejection of the claims under 35 USC 103(a) be withdrawn.

CONCLUSION

Applicants believe that no additional fee is due with this communication. However, if the USPTO determines that an additional fee is due, the Commissioner is hereby authorized to charge Mendel Biotechnology, Inc. Deposit Account No. **50-1025.**

Respectfully submitted,
MENDEL BIOTECHNOLOGY, INC.



Date: June 11, 2008

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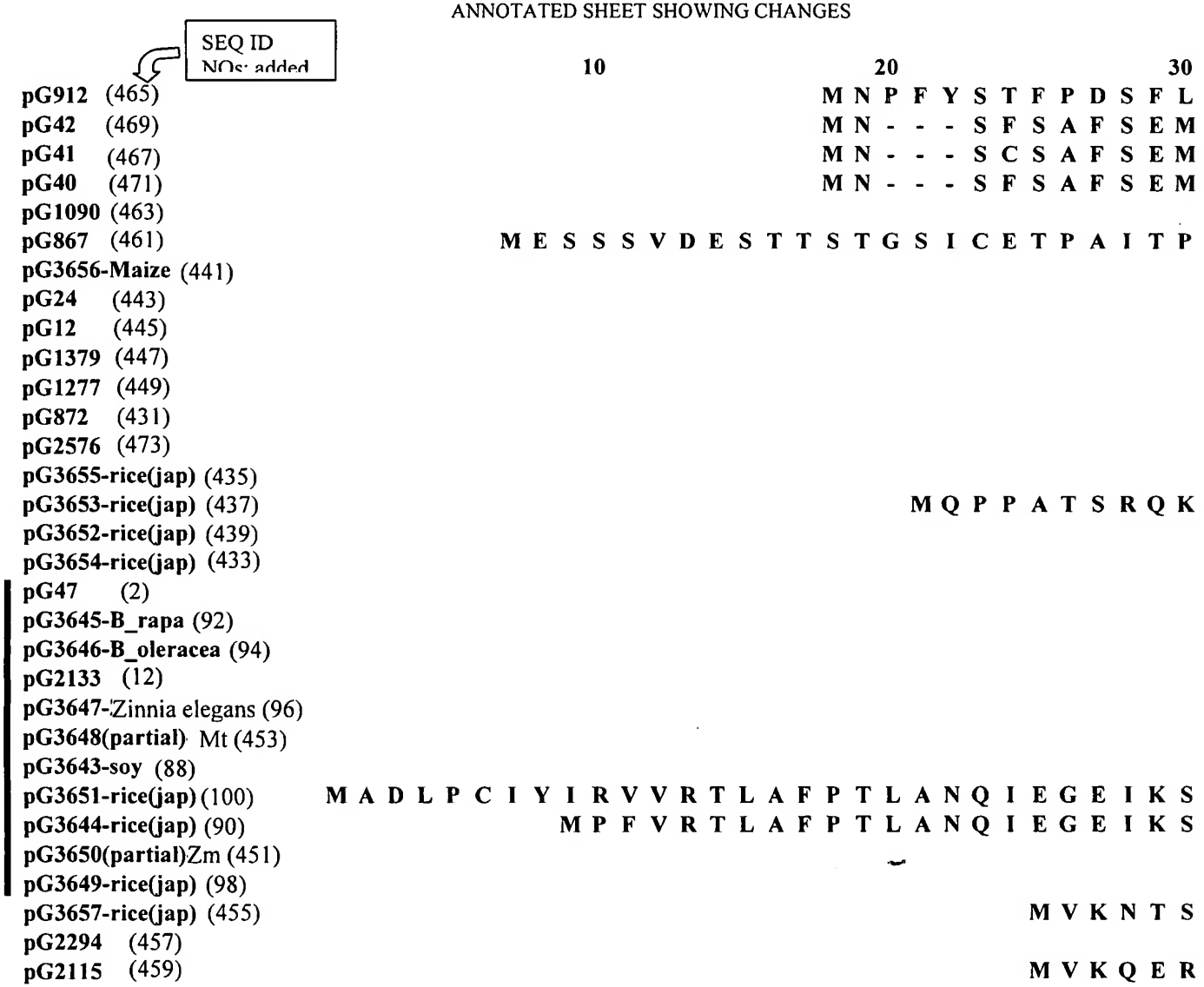
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pG41 (467) M N - - - S C S A F S E M
pG40 (471) M N - - - S F S A F S E M
pG1090 (463)
pG867 (461) M E S S S V D E S T T S T G S I C E T P A I T P
pG3656-Maize (441)
pG24 (443)
pG12 (445)
pG1379 (447)
pG1277 (449)
pG872 (431)
pG2576 (473)
pG3655-rice(jap) (435)
pG3653-rice(jap) (437) M Q P P A T S R Q K
pG3652-rice(jap) (439)
pG3654-rice(jap) (433)
pG47 (2)
pG3645-B_rapa (92)
pG3646-B_oleracea (94)
pG2133 (12)
pG3647-Zinnia elegans (96)
pG3648(partial) Mt (453)
pG3643-soy (88)
pG3651-rice(jap) (100) M A D L P C I Y I R V V R T L A F P T L A N Q I E G E I K S
pG3644-rice(jap) (90) M P F V R T L A F P T L A N Q I E G E I K S
pG3650(partial)Zm (451)
pG3649-rice(jap) (98)
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FIG. 3A

SEQ ID NOs: added

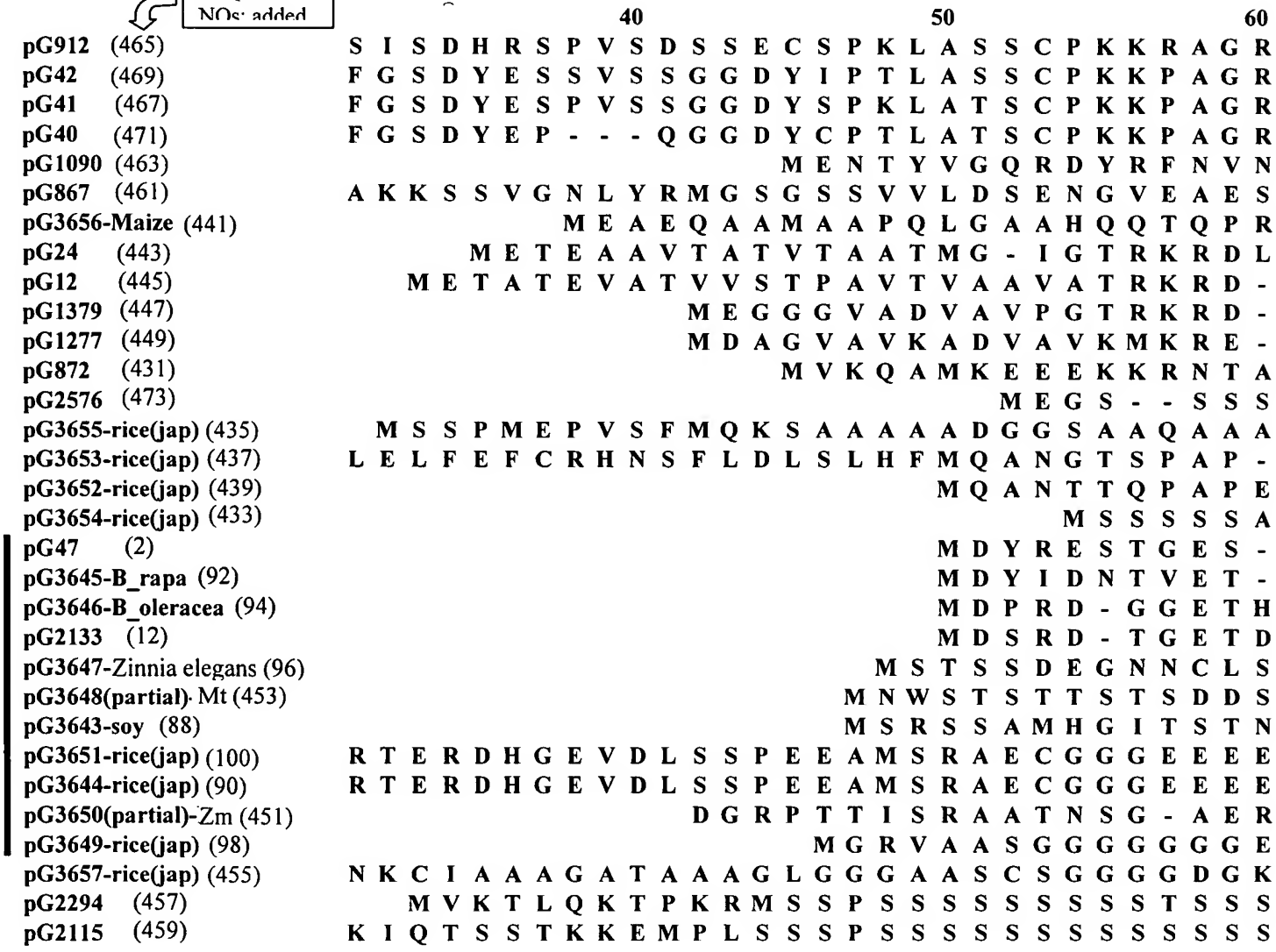
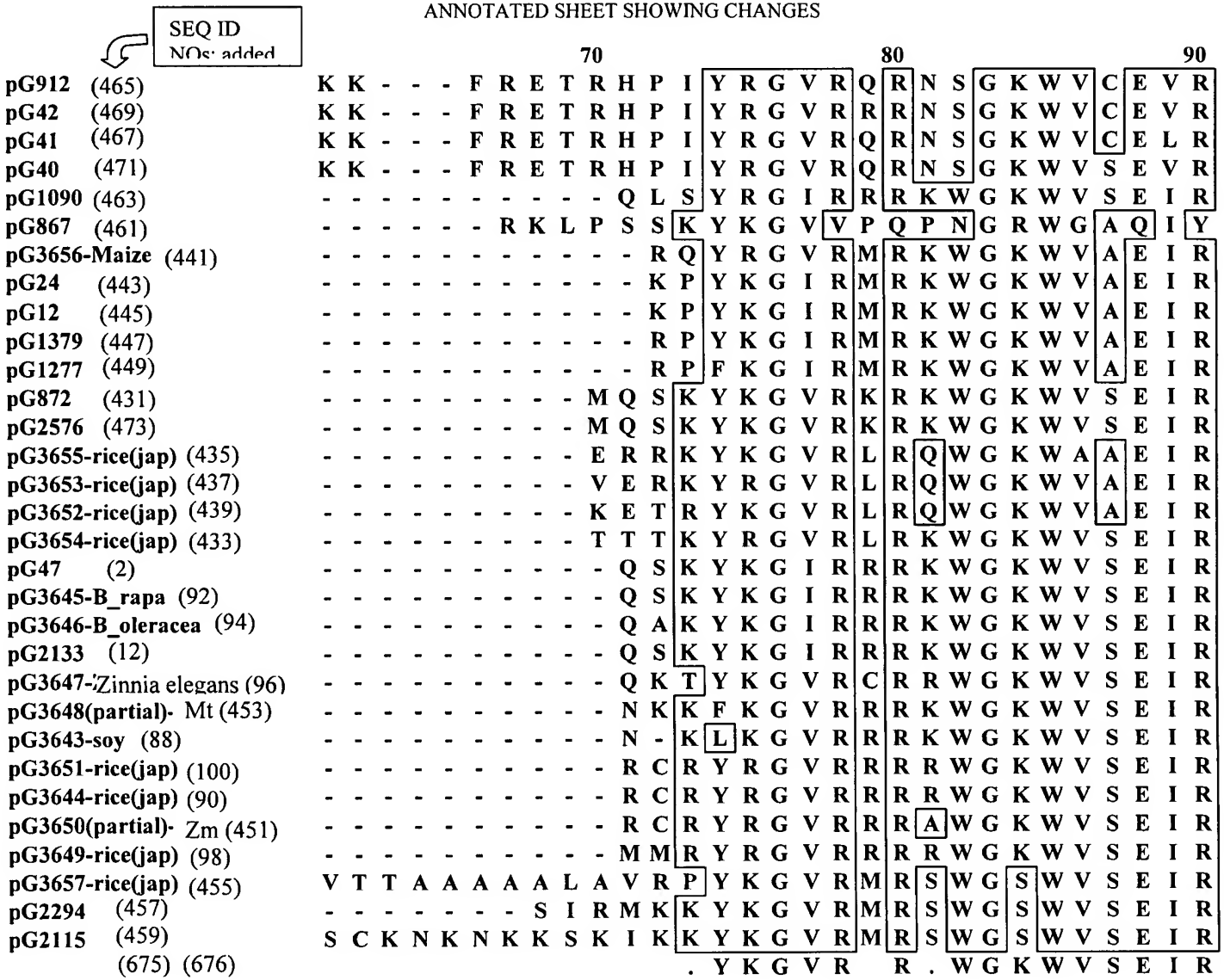


FIG. 3B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pG867 (461) - - - - - - R K L P S S K Y K G V V P Q P N G R W G A Q I Y
pG3656-Maize (441) - - - - - - - - - - - R Q Y R G V R M R K W G K W V A E I R
pG24 (443) - - - - - - - - - - - K P Y K G I R M R K W G K W V A E I R
pG12 (445) - - - - - - - - - - - K P Y K G I R M R K W G K W V A E I R
pG1379 (447) - - - - - - - - - - - R P Y K G I R M R K W G K W V A E I R
pG1277 (449) - - - - - - - - - - - R P F K G I R M R K W G K W V A E I R
pG872 (431) - - - - - - - - - M Q S K Y K G V R K R K W G K W V S E I R
pG2576 (473) - - - - - - - - - M Q S K Y K G V R K R K W G K W V S E I R
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pG2133 (12) - - - - - - - - - - Q S K Y K G I R R R K W G K W V S E I R
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pG3657-rice(jap) (455) V T T A A A A A L A V R P Y K G V R M R S W G S W V S E I R
pG2294 (457) - - - - - - - S I R M K K Y K G V R M R S W G S W V S E I R
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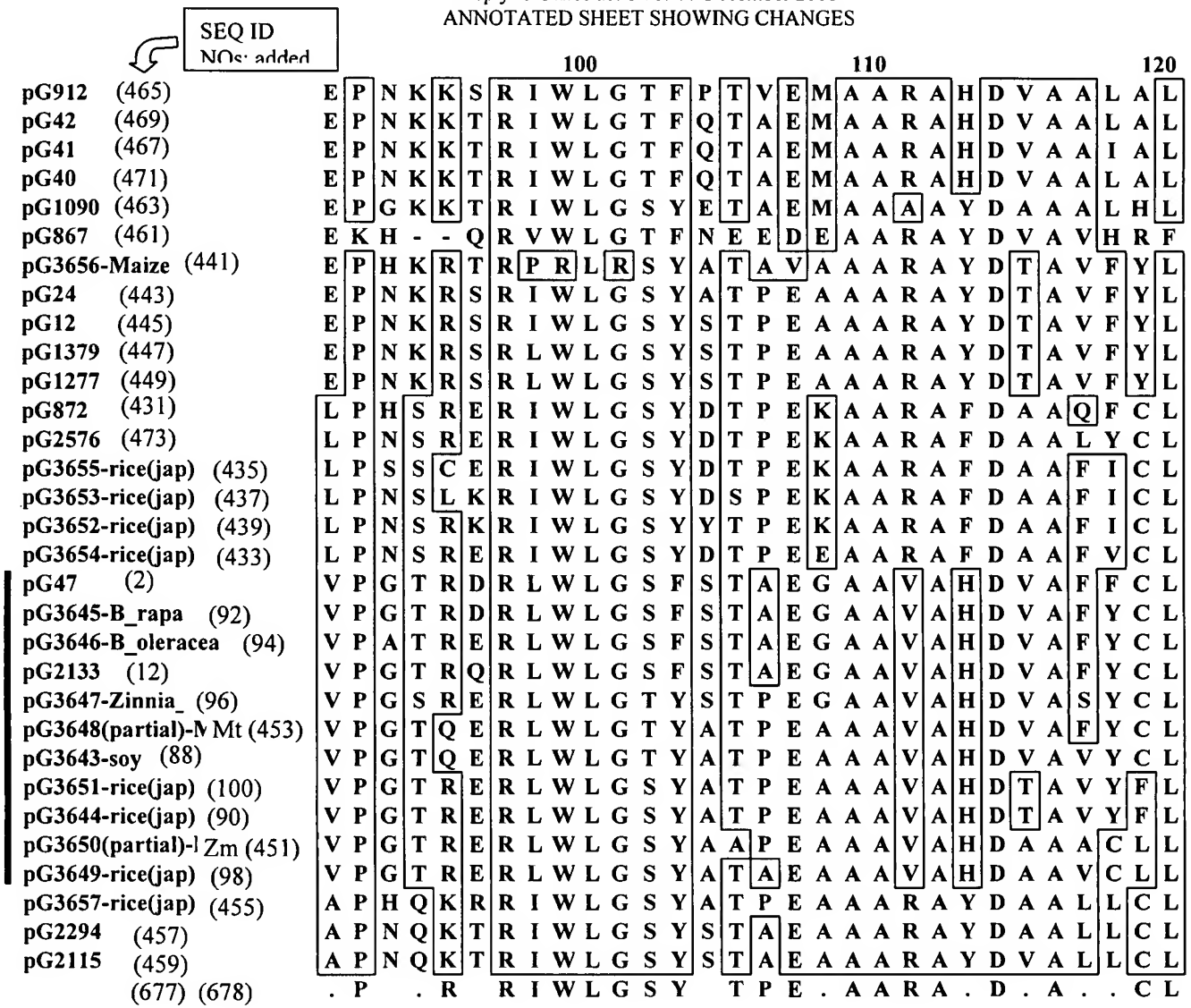
(675) (676) . Y K G V R R . W G K W V S E I R

FIG. 3C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pG3647-Zinnia_ (96) V P G S R E R L W L G T Y S T P E G A A V A H D V A S Y C L
pG3648(partial)-M Mt (453) V P G T Q E R L W L G T Y A T P E A A A V A H D V A F Y C L
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pG3644-rice(jap) (90) V P G T R E R L W L G S Y A T P E A A A V A H D T A V Y F L
pG3650(partial)-I Zm (451) V P G T R E R L W L G S Y A A P E A A A V A H D A A A C L L
pG3649-rice(jap) (98) V P G T R E R L W L G S Y A T A E A A A V A H D A A A V C L L
pG3657-rice(jap) (455) A P H Q K R R I W L G S Y A T P E A A A R A Y D A A L L C L
pG2294 (457) A P N Q K T R I W L G S Y S T A E A A A R A Y D A A L L C L
pG2115 (459) A P N Q K T R I W L G S Y S T A E A A A R A Y D V A L L C L
(677) (678) . P . R R I W L G S Y T P E . A A R A . D . A . . C L

FIG. 3D

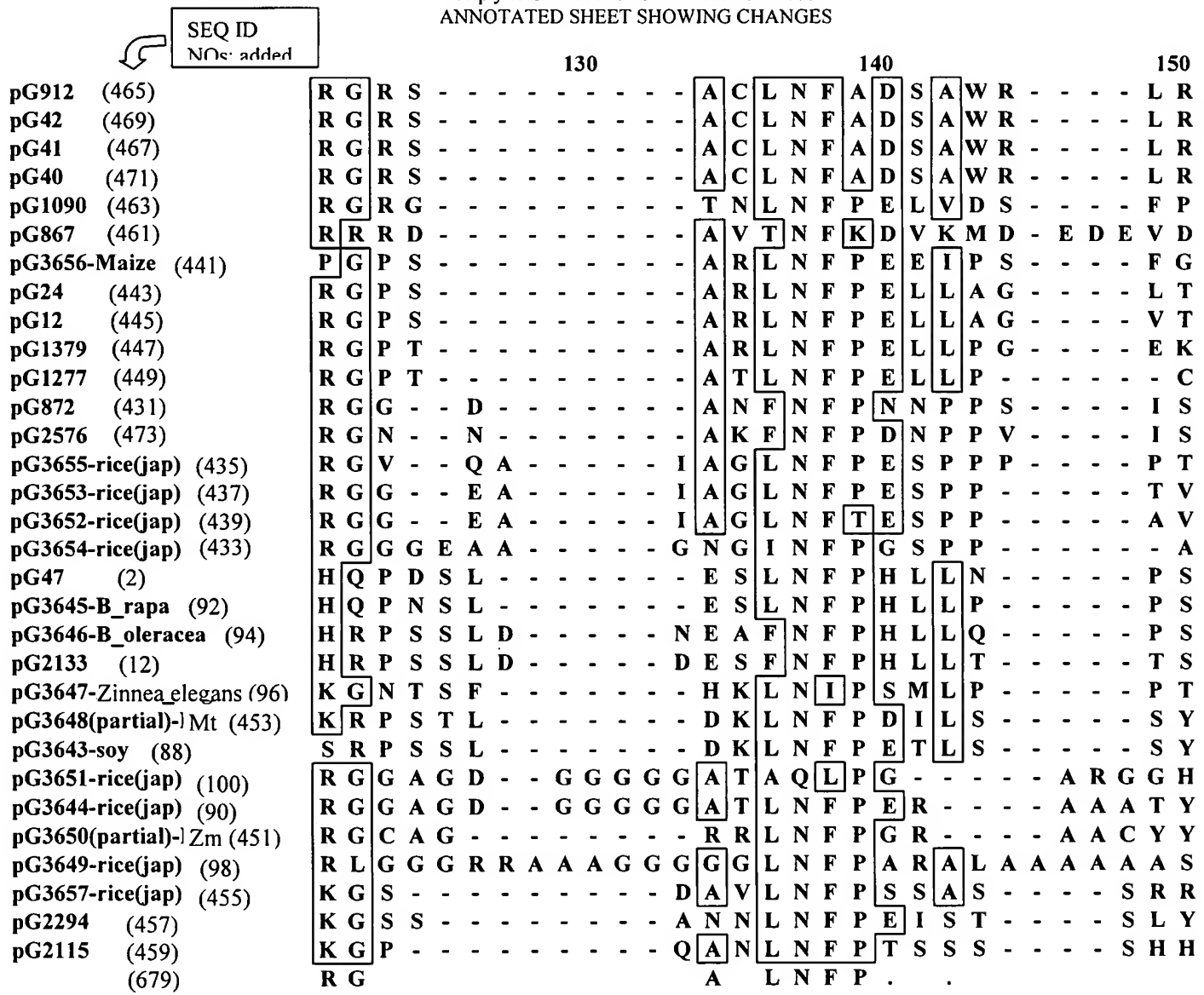
SEQ ID NOs added
130
140
150
pG912 (465) R G R S - - - - - - - - - - A C L N F A D S A W R - - - - L R
pG42 (469) R G R S - - - - - - - - - - A C L N F A D S A W R - - - - L R
pG41 (467) R G R S - - - - - - - - - - A C L N F A D S A W R - - - - L R
pG40 (471) R G R S - - - - - - - - - - A C L N F A D S A W R - - - - L R
pG1090 (463) R G R G - - - - - - - - - - T N L N F P E L V D S - - - - F P
pG867 (461) R R R D - - - - - - - - - - A V T N F K D V K M D - E D E V D
pG3656-Maize (441) P G P S - - - - - - - - - - A R L N F P E E I P S - - - - F G
pG24 (443) R G P S - - - - - - - - - - A R L N F P E L L A G - - - - L T
pG12 (445) R G P S - - - - - - - - - - A R L N F P E L L A G - - - - V T
pG1379 (447) R G P T - - - - - - - - - - A R L N F P E L L P G - - - - E K
pG1277 (449) R G P T - - - - - - - - - - A T L N F P E L L P - - - - - - C
pG872 (431) R G G - - D - - - - - - - - A N F N F P N N P P S - - - - I S
pG2576 (473) R G N - - N - - - - - - - - A K F N F P D N P P V - - - - I S
pG3655-rice(jap) (435) R G V - - Q A - - - - - - I A G L N F P E S P P P - - - - P T
pG3653-rice(jap) (437) R G G - - E A - - - - - - I A G L N F P E S P P - - - - - T V
pG3652-rice(jap) (439) R G G - - E A - - - - - - I A G L N F T E S P P - - - - - A V
pG3654-rice(jap) (433) R G G G E A A - - - - - - G N G I N F P G S P P - - - - - - A
pG47 (2) H Q P D S L - - - - - - - - E S L N F P H L L N - - - - - P S
pG3645-B_rapa (92) H Q P N S L - - - - - - - - E S L N F P H L L P - - - - - P S
pG3646-B_oleracea (94) H R P S S L D - - - - - - N E A F N F P H L L Q - - - - - P S
pG2133 (12) H R P S S L D - - - - - - D E S F N F P H L L T - - - - - T S
pG3647-Zinnea_elegans (96) K G N T S F - - - - - - - - H K L N I P S M L P - - - - - P T
pG3648(partial)-] Mt (453) K R P S T L - - - - - - - - D K L N F P D I L S - - - - - S Y
pG3643-soy (88) S R P S S L - - - - - - - - D K L N F P E T L S - - - - - S Y
pG3651-rice(jap) (100) R G G A G D - - G G G G G A T A Q L P G - - - - - A R G G H
pG3644-rice(jap) (90) R G G A G D - - G G G G G A T L N F P E R - - - - A A A T Y
pG3650(partial)-] Zm (451) R G C A G - - - - - - - - - R R L N F P G R - - - - A A C Y Y
pG3649-rice(jap) (98) R L G G G R R A A A G G G G G L N F P A R A L A A A A A A A S
pG3657-rice(jap) (455) K G S - - - - - - - - - - D A V L N F P S S A S - - - - S R R
pG2294 (457) K G S S - - - - - - - - - - A N N L N F P E I S T - - - - S L Y
pG2115 (459) K G P - - - - - - - - - - Q A N L N F P T S S S - - - - S H H
(679) R G A L N F P . .

FIG. 3E

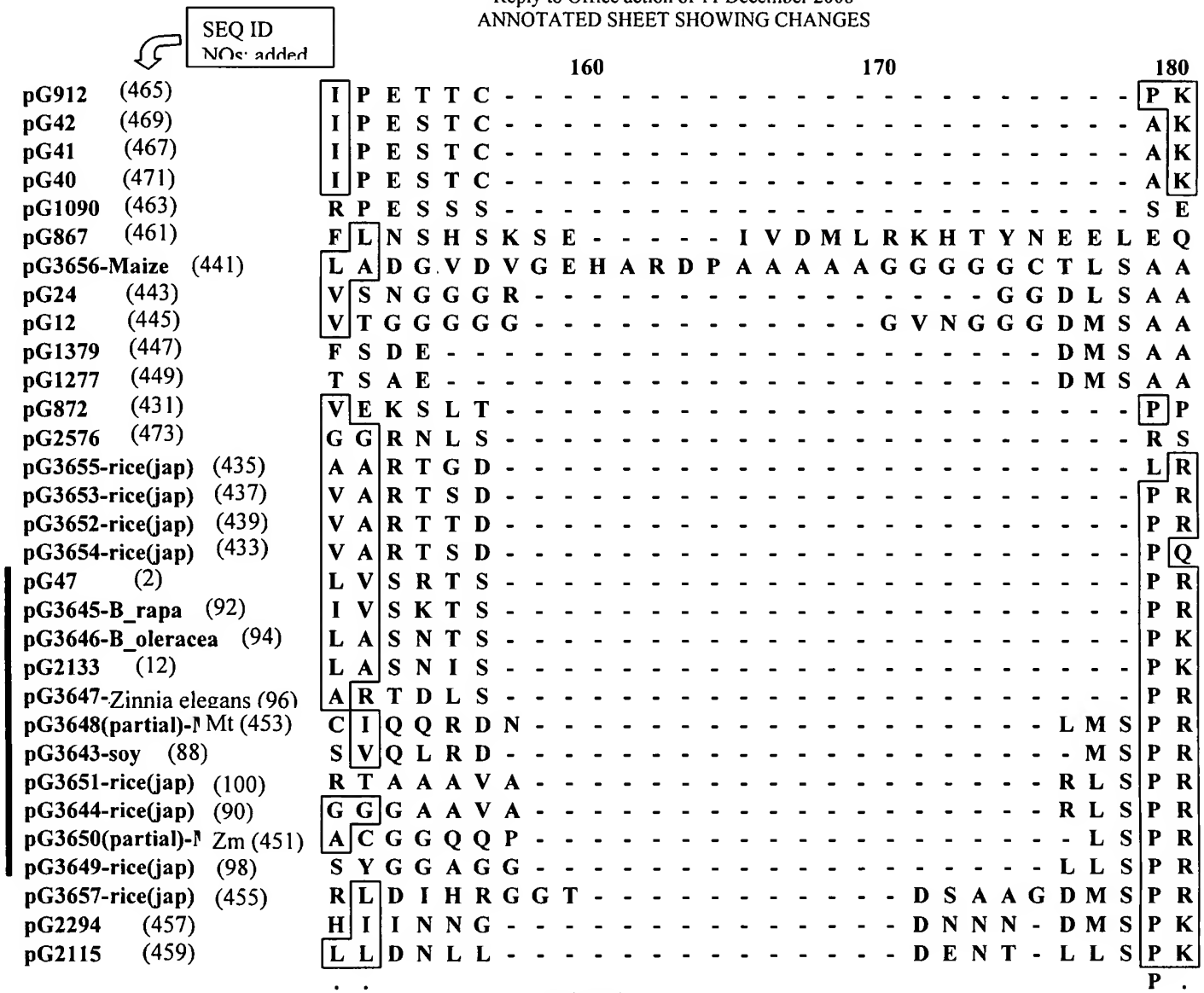
SEQ ID NOs: added
160
170
180
pG912 (465) I P E T T C - P K
pG42 (469) I P E S T C - A K
pG41 (467) I P E S T C - A K
pG40 (471) I P E S T C - A K
pG1090 (463) R P E S S S - S E
pG867 (461) F L N S H S K S E - - - - - I V D M L R K H T Y N E E L E Q
pG3656-Maize (441) L A D G V D V G E H A R D P A A A A A G G G G G C T L S A A
pG24 (443) V S N G G G R - - - - - - - - - - - - - - - - - - - G G D L S A A
pG12 (445) V T G G G G G - - - - - - - - - - - - - - - G V N G G G D M S A A
pG1379 (447) F S D E - D M S A A
pG1277 (449) T S A E - D M S A A
pG872 (431) V E K S L T - P P
pG2576 (473) G G R N L S - R S
pG3655-rice(jap) (435) A A R T G D - L R
pG3653-rice(jap) (437) V A R T S D - P R
pG3652-rice(jap) (439) V A R T T D - P R
pG3654-rice(jap) (433) V A R T S D - P Q
pG47 (2) L V S R T S - P R
pG3645-B_rapa (92) I V S K T S - P R
pG3646-B_oleracea (94) L A S N T S - P K
pG2133 (12) L A S N I S - P K
pG3647-Zinnia elegans (96) A R T D L S - P R
pG3648(partial)-M Mt (453) C I Q Q R D N - L M S P R
pG3643-soy (88) S V Q L R D - M S P R
pG3651-rice(jap) (100) R T A A A V A - R L S P R
pG3644-rice(jap) (90) G G G A A V A - R L S P R
pG3650(partial)-M Zm (451) A C G G Q Q P - L S P R
pG3649-rice(jap) (98) S Y G G A G G - L L S P R
pG3657-rice(jap) (455) R L D I H R G G T - - - - - - - - - - - - - - D S A A G D M S P R
pG2294 (457) H I I N N G - - - - - - - - - - - - - - - - - - D N N N - D M S P K
pG2115 (459) L L D N L L - - - - - - - - - - - - - - - - - - D E N T - L L S P K
. .
P .

FIG. 3F

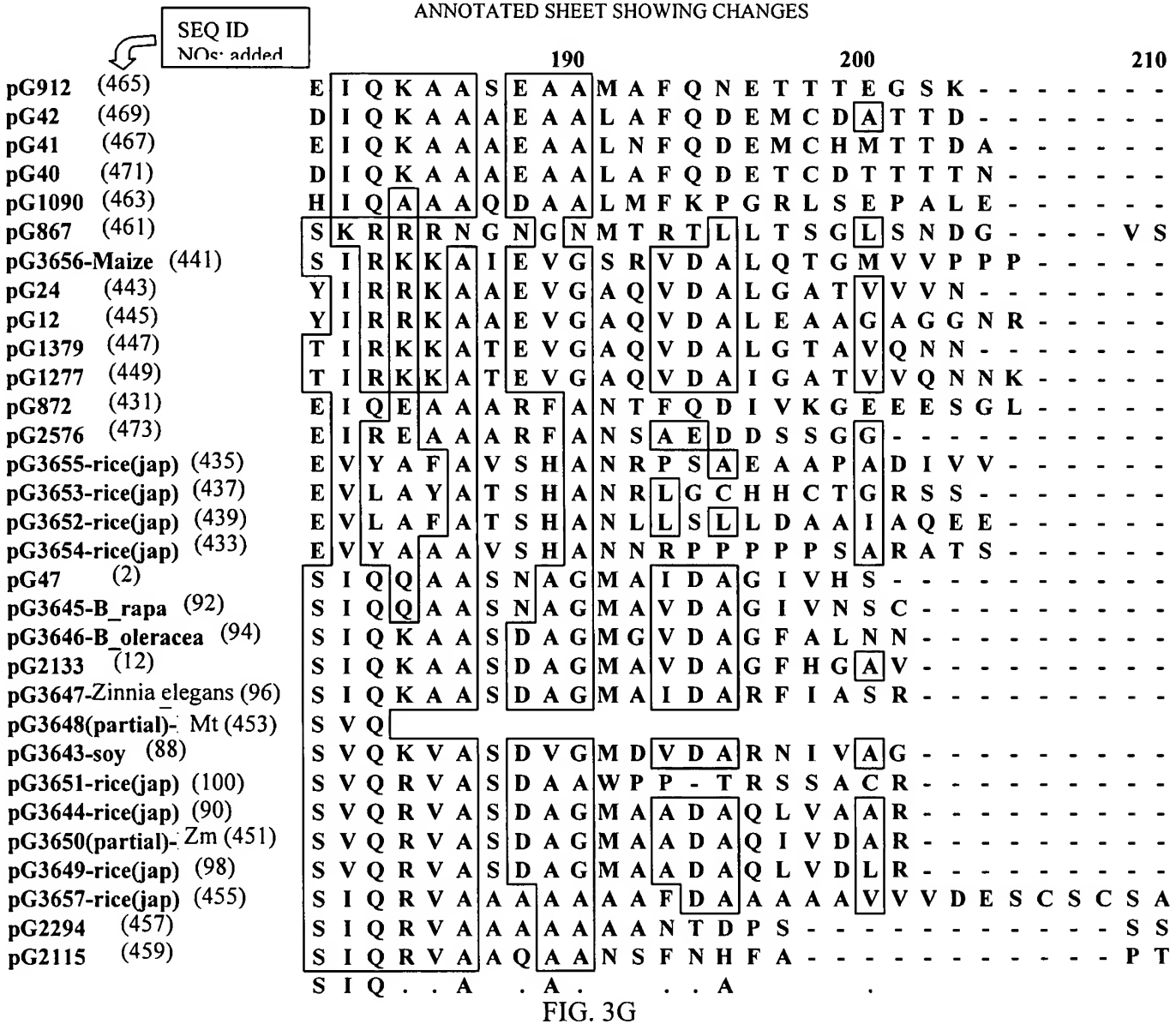
SEQ ID NOs: added
190
200
210
pG912 (465) E I Q K A A S E A A M A F Q N E T T T E G S K - - - - - - - -
pG42 (469) D I Q K A A A E A A L A F Q D E M C D A T T D - - - - - - - -
pG41 (467) E I Q K A A A E A A L N F Q D E M C H M T T D A - - - - - - -
pG40 (471) D I Q K A A A E A A L A F Q D E T C D T T T T N - - - - - - -
pG1090 (463) H I Q A A A Q D A A L M F K P G R L S E P A L E - - - - - - -
pG867 (461) S K R R R N G N G N M T R T L L T S G L S N D G - - - - V S
pG3656-Maize (441) S I R K K A I E V G S R V D A L Q T G M V V P P P - - - - - -
pG24 (443) Y I R R K A A E V G A Q V D A L G A T V V V N - - - - - - - -
pG12 (445) Y I R R K A A E V G A Q V D A L E A A G A G G N R - - - - - -
pG1379 (447) T I R K K A T E V G A Q V D A L G T A V Q N N - - - - - - - -
pG1277 (449) T I R K K A T E V G A Q V D A I G A T V V Q N N K - - - - - -
pG872 (431) E I Q E A A A R F A N T F Q D I V K G E E E S G L - - - - - -
pG2576 (473) E I R E A A A R F A N S A E D D S S G G - - - - - - - - - -
pG3655-rice(jap) (435) E V Y A F A V S H A N R P S A E A A P A D I V V - - - - - -
pG3653-rice(jap) (437) E V L A Y A T S H A N R L G C H H C T G R S S - - - - - - -
pG3652-rice(jap) (439) E V L A F A T S H A N L L S L L D A A I A Q E E - - - - - -
pG3654-rice(jap) (433) E V Y A A A V S H A N N R P P P P P S A R A T S - - - - - -
pG47 (2) S I Q Q A A S N A G M A I D A G I V H S - - - - - - - - - -
pG3645-B_rapa (92) S I Q Q A A S N A G M A V D A G I V N S C - - - - - - - - -
pG3646-B_oleracea (94) S I Q K A A S D A G M G V D A G F A L N N - - - - - - - - -
pG2133 (12) S I Q K A A S D A G M A V D A G F H G A V - - - - - - - - - -
pG3647-Zinnia elegans (96) S I Q K A A S D A G M A I D A R F I A S R - - - - - - - - -
pG3648(partial)-Mt (453) S V Q
pG3643-soy (88) S V Q K V A S D V G M D V D A R N I V A G - - - - - - - - -
pG3651-rice(jap) (100) S V Q R V A S D A A W P P - T R S S A C R - - - - - - - - -
pG3644-rice(jap) (90) S V Q R V A S D A G M A A D A Q L V A A R - - - - - - - - -
pG3650(partial)-Zm (451) S V Q R V A S D A G M A A D A Q I V D A R - - - - - - - - -
pG3649-rice(jap) (98) S V Q R V A S D A G M A A D A Q L V D L R - - - - - - - - -
pG3657-rice(jap) (455) S I Q R V A A A A A A A F D A A A A A V V V D E S C S C S A
pG2294 (457) S I Q R V A A A A A A A N T D P S - - - - - - - - - - - - S S
pG2115 (459) S I Q R V A A Q A A N S F N H F A - - - - - - - - - - - - P T
S I Q . . A . A . . . A .

FIG. 3G

SEQ ID NOs: added

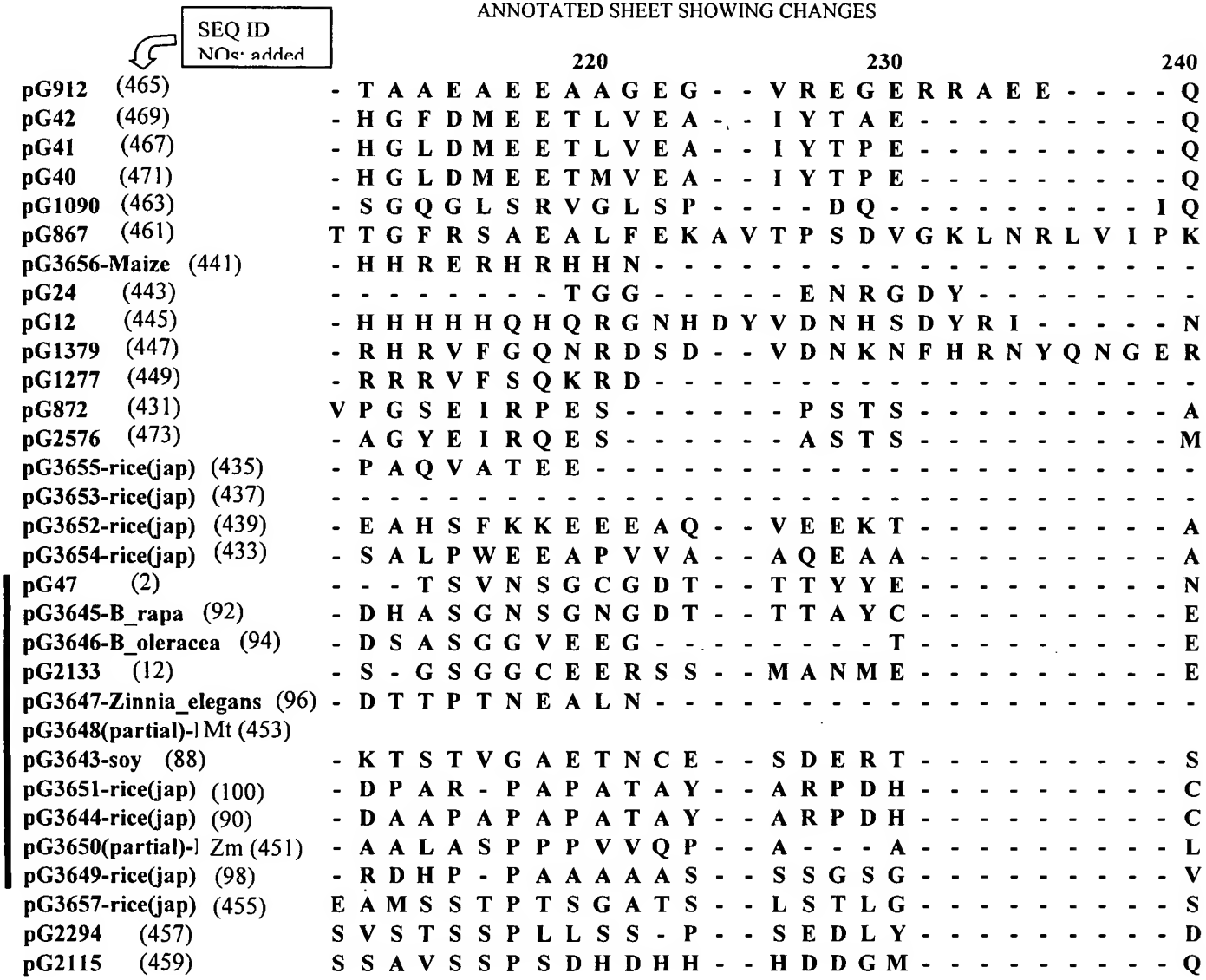

FIG. 3H

SEQ ID NOs: added

```
                                  250                 260                 270
pG912     (465)                N G G V F Y M D D E A L L G M P - - - - - - - - - - - - - -
pG42      (469)                S E N A F Y M H D E A M F E M P - - - - - - - - - - - - - -
pG41      (467)                S Q D A F Y M D E E A M L G M S - - - - - - - - - - - - - -
pG40      (471)                S E G A F Y M D E E T M F G M P - - - - - - - - - - - - - -
pG1090    (463)                A I N E S P L D S P R - - - - - - - - - - - - - - - - - - -
pG867     (461)                H H A E K H F P L P S S N V S V K G V L L N F E D V N G K V
pG3656-Maize  (441)            - - - - - - - H L P Q L - - - - - - - - - - - - - - - - - -
pG24      (443)                E K I E N C R - - - - - - - - - - - - - - - - - - - - - - -
pG12      (445)                D D L M E C S S K E G F - - - - - - - - - - - - - - - - - -
pG1379    (447)                E E E E E D E D D K R L - - - - - - - - - - - - - - - - - -
pG1277    (449)                - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG872     (431)                S V A T S T V D Y D F S - - - - - - - - F L D L L P M - - -
pG2576    (473)                D V D S E F L S M L P T V G S G N - - - F A S E F G L - - -
pG3655-rice(jap)  (435)        - - - S D G V V R G N A - - - - - - - - A P P P V Q V - - -
pG3653-rice(jap)  (437)        - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG3652-rice(jap)  (439)        E E S S D V V R A N A A - - - - - - - - P P P P V Q V - - -
pG3654-rice(jap)  (433)        D M A P D V V V L P S S - - - - - - - - P V N V L A A - - -
pG47      (2)                  G A D Q V - - - - - - - - - - - - - - - - - - - - - - - - -
pG3645-B_rapa  (92)            N G G - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG3646-B_oleracea  (94)        R E T - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG2133    (12)                 E D K - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG3647-Zinnia_elegans  (96)    - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG3648(partial)-Mt (453)
pG3643-soy  (88)               T A S V C N V V G E G G A D H S D V F W W D D D G G S - - -
pG3651-rice(jap)  (100)        A G A T T A R H D E L A R - - - - - - - R G M Y G A H - - -
pG3644-rice(jap)  (90)         A G A T T A R H D E L A R - - - - - - - R G M Y G A H - - -
pG3650(partial)-Zm (451)       A G I Y W R R R A R R R R - - - - - - - R R A R P R V - - -
pG3649-rice(jap)  (98)         A G D G A R K Q G T R G E V - - - - - - S D T Y W C R - - -
pG3657-rice(jap)  (455)        S G G G D V L D H A T T P S S S S S A A A N V C S P P L E G
pG2294    (457)                V V S M S Q Y D Q Q V S L S E S S S - W Y N C F D G D - - -
pG2115    (459)                S L M G S F V D N H V S L M D S T S S W Y D D H N G - - - -
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FIG. 3I

SEQ ID NOs: added

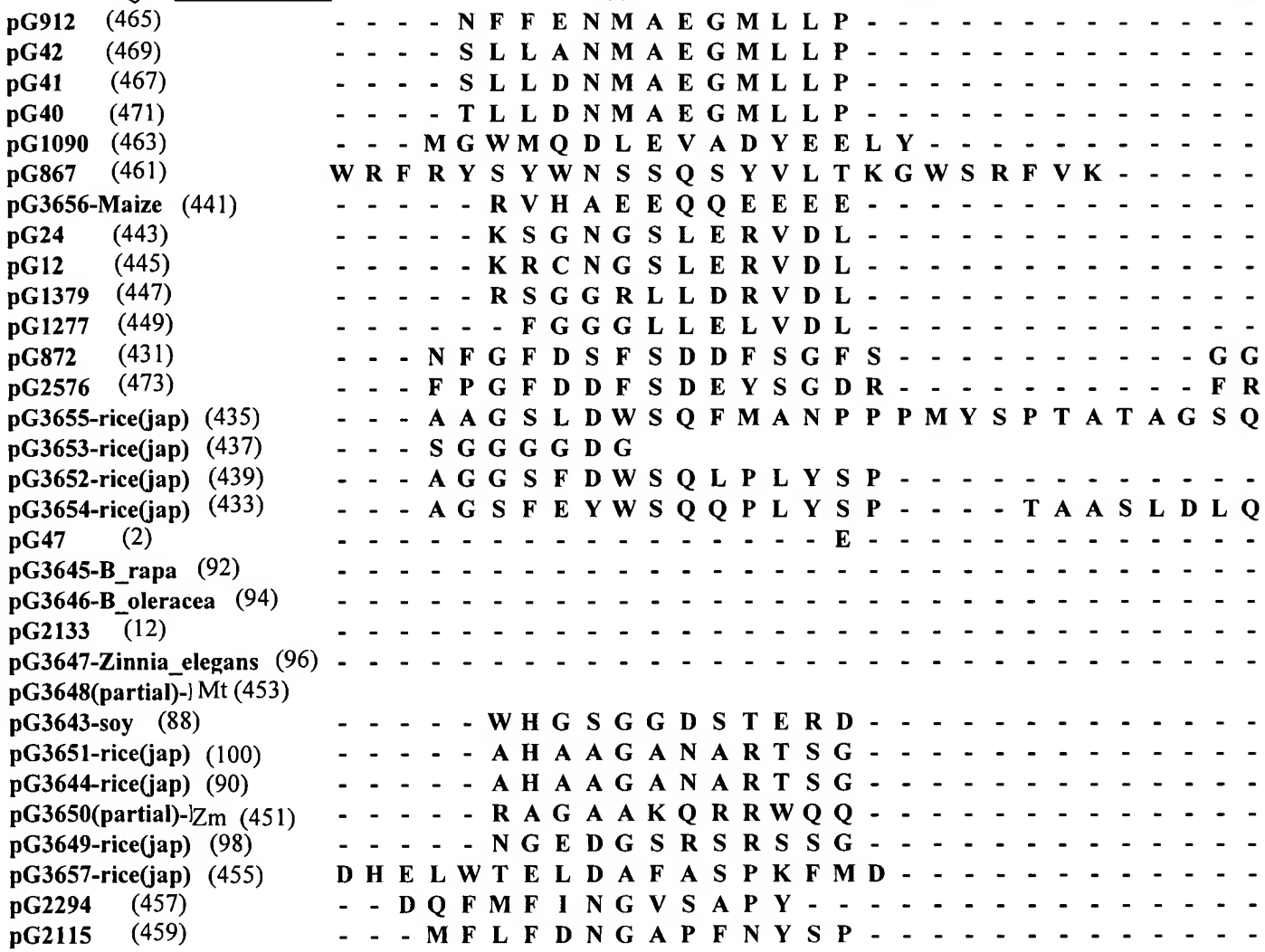
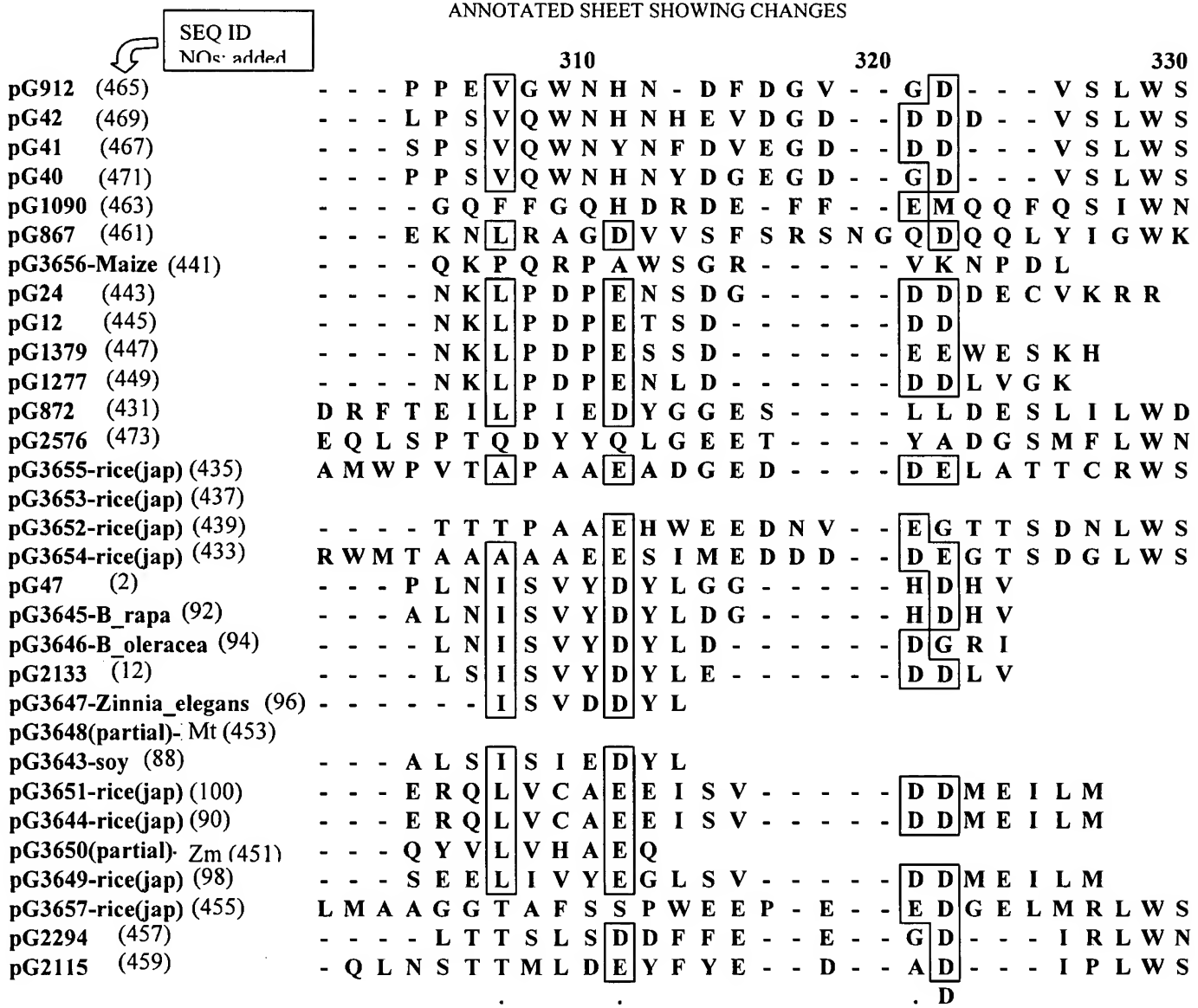


FIG. 3J


SEQ ID NOs: added
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320
330
pG912 (465) - - - P P E V G W N H N - D F D G V - - G D - - - V S L W S
pG42 (469) - - - L P S V Q W N H N H E V D G D - - D D D - - V S L W S
pG41 (467) - - - S P S V Q W N Y N F D V E G D - - D D - - - V S L W S
pG40 (471) - - - P P S V Q W N H N Y D G E G D - - G D - - - V S L W S
pG1090 (463) - - - - G Q F F G Q H D R D E - F F - - E M Q Q F Q S I W N
pG867 (461) - - - E K N L R A G D V V S F S R S N G Q D Q Q L Y I G W K
pG3656-Maize (441) - - - - Q K P Q R P A W S G R - - - - - V K N P D L
pG24 (443) - - - - N K L P D P E N S D G - - - - - D D D E C V K R R
pG12 (445) - - - - N K L P D P E T S D - - - - - - D D
pG1379 (447) - - - - N K L P D P E S S D - - - - - - E E W E S K H
pG1277 (449) - - - - N K L P D P E N L D - - - - - - D D L V G K
pG872 (431) D R F T E I L P I E D Y G G E S - - - - L L D E S L I L W D
pG2576 (473) E Q L S P T Q D Y Y Q L G E E T - - - - Y A D G S M F L W N
pG3655-rice(jap) (435) A M W P V T A P A A E A D G E D - - - - D E L A T T C R W S
pG3653-rice(jap) (437)
pG3652-rice(jap) (439) - - - - T T T P A A E H W E E D N V - - E G T T S D N L W S
pG3654-rice(jap) (433) R W M T A A A A A E E S I M E D D D - - D E G T S D G L W S
pG47 (2) - - - P L N I S V Y D Y L G G - - - - - H D H V
pG3645-B_rapa (92) - - - A L N I S V Y D Y L D G - - - - - H D H V
pG3646-B_oleracea (94) - - - - - L N I S V Y D Y L D - - - - - - D G R I
pG2133 (12) - - - - - L S I S V Y D Y L E - - - - - - D D L V
pG3647-Zinnia_elegans (96) - - - - - - - I S V D D Y L
pG3648(partial)-Mt (453)
pG3643-soy (88) - - - A L S I S I E D Y L
pG3651-rice(jap) (100) - - - E R Q L V C A E E I S V - - - - - D D M E I L M
pG3644-rice(jap) (90) - - - E R Q L V C A E E I S V - - - - - D D M E I L M
pG3650(partial)-Zm (451) - - - Q Y V L V H A E Q
pG3649-rice(jap) (98) - - - S E E L I V Y E G L S V - - - - - D D M E I L M
pG3657-rice(jap) (455) L M A A G G T A F S S P W E E P - E - - E D G E L M R L W S
pG2294 (457) - - - - - L T T S L S D D F F E - - E - - G D - - - I R L W N
pG2115 (459) - Q L N S T T M L D E Y F Y E - - D - - A D - - - I P L W S
D

FIG. 3K

SEQ ID NOs: added

	340	350	360
pG912 (465)	**F D E**		
pG42 (469)	**Y**		
pG41 (467)	**Y**		
pG40 (471)	**Y**		
pG1090 (463)	**S N N**		
pG867 (461)	**S R S G S D L D A G R V L R L F G V N I S P E S S R N D V V**		
pG3656-Maize (441)			
pG24 (443)			
pG12 (445)			
pG1379 (447)			
pG1277 (449)			
pG872 (431)	**F**		
pG2576 (473)	**F**		
pG3655-rice(jap) (435)	**F D A**		
pG3653-rice(jap) (437)			
pG3652-rice(jap) (439)	**F D F**		
pG3654-rice(jap) (433)	**F H Y S P T R S K W**		
pG47 (2)			
pG3645-B_rapa (92)			
pG3646-B_oleracea (94)			
pG2133 (12)			
pG3647-Zinnia_elegans (96)			
pG3648(partial)-Medicago (453)			
pG3643-soy (88)			
pG3651-rice(jap) (100)			
pG3644-rice(jap) (90)			
pG3650(partial)-Maize (451)			
pG3649-rice(jap) (98)			
pG3657-rice(jap) (455)	**F C**		
pG2294 (457)	**F C**		
pG2115 (459)	**F N**		

FIG. 3L

SEQ ID NOs: added

370 380 390

pG912 (465)
pG42 (469)
pG41 (467)
pG40 (471)
pG1090 (463)
pG867 (461) **G N K R V N D T E M L S L V C S K K Q R I F H A S**
pG3656-Maize (441)
pG24 (443)
pG12 (445)
pG1379 (447)
pG1277 (449)
pG872 (431)
pG2576 (473)
pG3655-rice(jap) (435)
pG3653-rice(jap) (437)
pG3652-rice(jap) (439)
pG3654-rice(jap) (433)
pG47 (2)
pG3645-B_rapa (92)
pG3646-B_oleracea (94)
pG2133 (12)
pG3647-Zinnia_elegans (96)
pG3648(partial)-Medicago (453)
pG3643-soy (88)
pG3651-rice(jap) (100)
pG3644-rice(jap) (90)
pG3650(partial)-Maize (451)
pG3649-rice(jap) (98)
pG3657-rice(jap) (455)
pG2294 (457)
pG2115 (459)

FIG. 3M

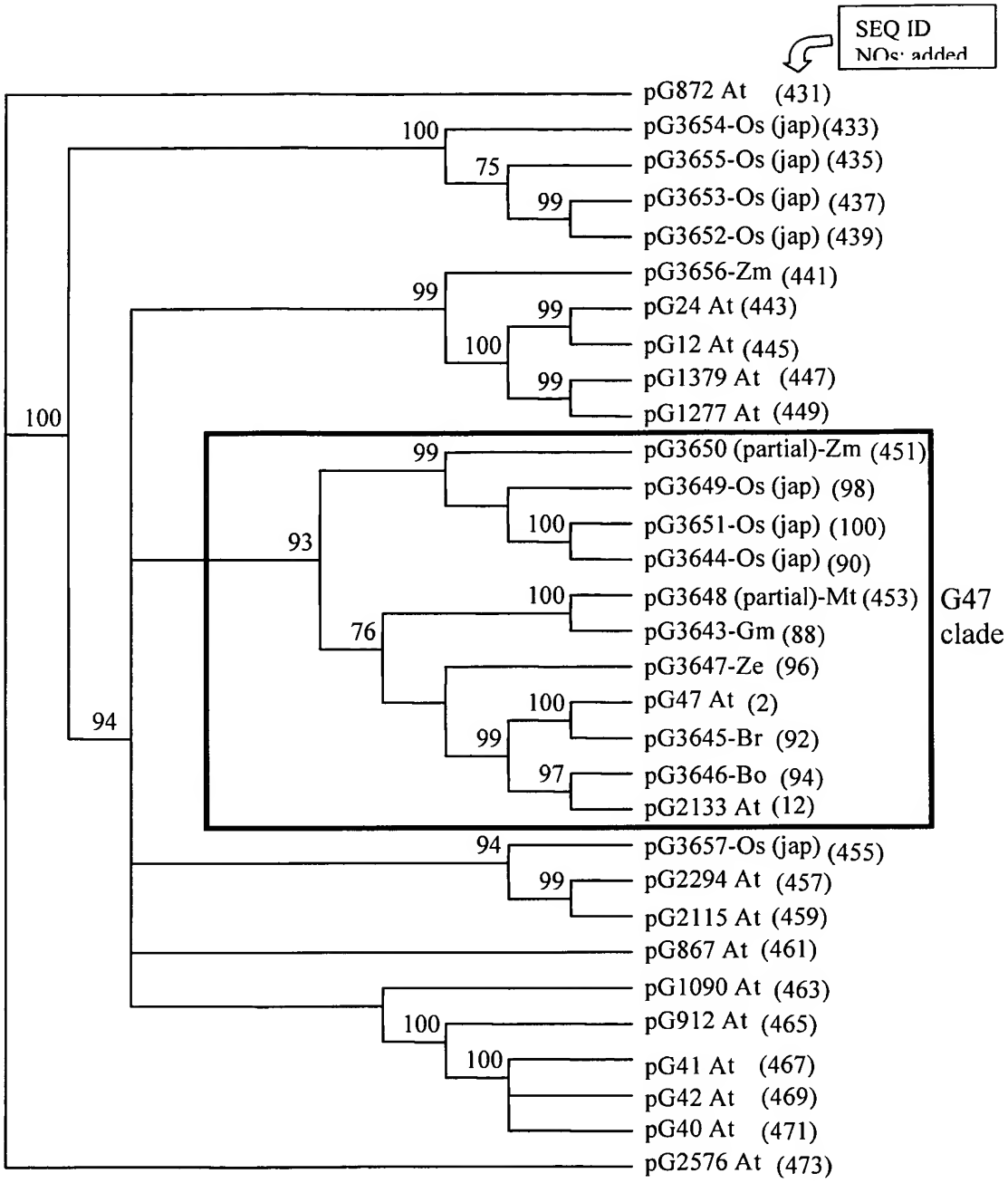
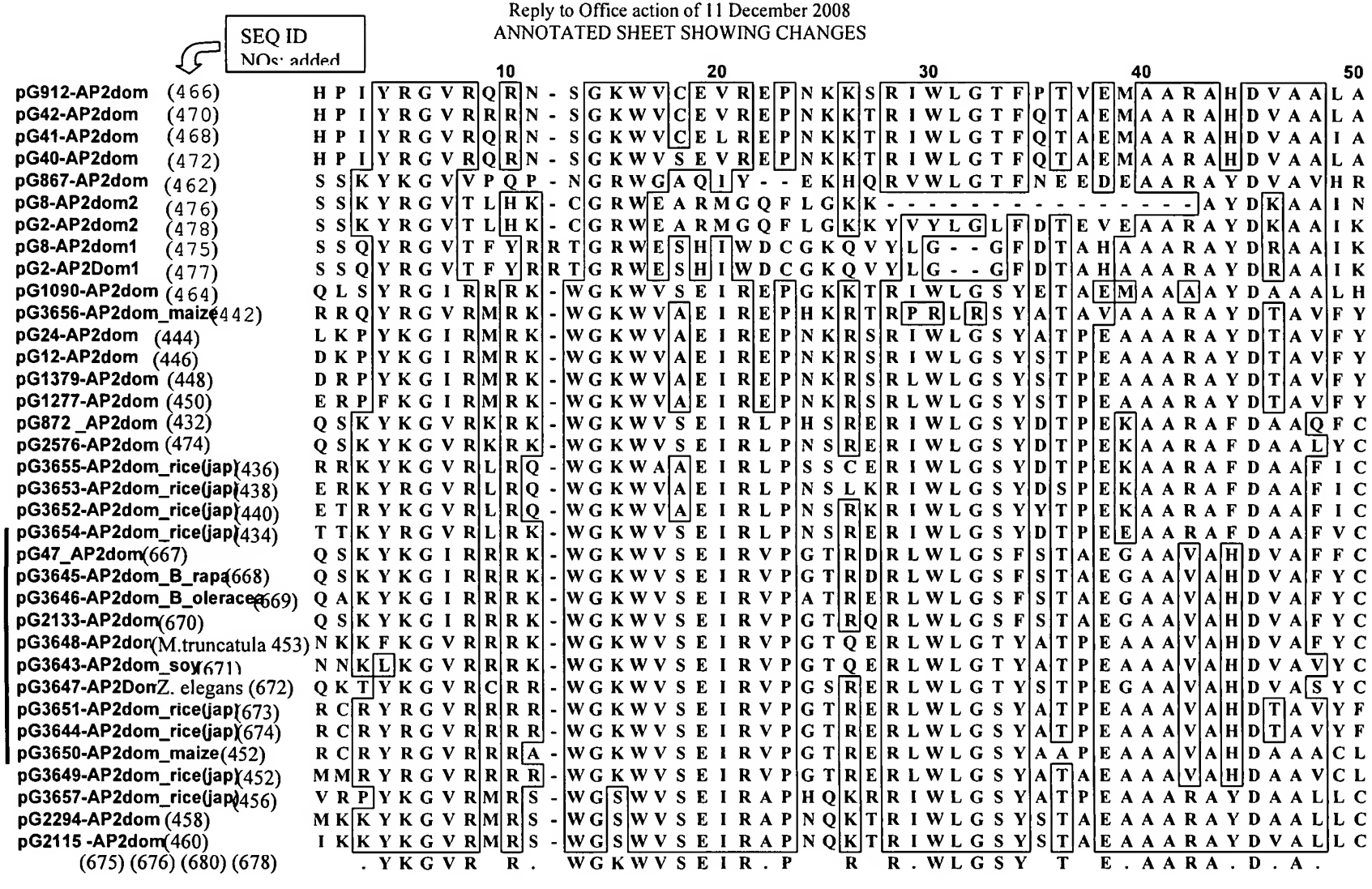

SEQ ID NOs: added
pG872 At (431)
pG3654-Os (jap)(433)
pG3655-Os (jap) (435)
pG3653-Os (jap) (437)
pG3652-Os (jap) (439)
pG3656-Zm (441)
pG24 At (443)
pG12 At (445)
pG1379 At (447)
pG1277 At (449)
pG3650 (partial)-Zm (451)
pG3649-Os (jap) (98)
pG3651-Os (jap) (100)
pG3644-Os (jap) (90)
pG3648 (partial)-Mt (453)
pG3643-Gm (88)
pG3647-Ze (96)
pG47 At (2)
pG3645-Br (92)
pG3646-Bo (94)
pG2133 At (12)
G47 clade
pG3657-Os (jap) (455)
pG2294 At (457)
pG2115 At (459)
pG867 At (461)
pG1090 At (463)
pG912 At (465)
pG41 At (467)
pG42 At (469)
pG40 At (471)
pG2576 At (473)

FIG. 4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pG912-AP2dom (466) H P I Y R G V R Q R N - S G K W V C E V R E P N K K S R I W L G T F P T V E M A A R A H D V A A L A
pG42-AP2dom (470) H P I Y R G V R R R N - S G K W V C E V R E P N K K T R I W L G T F Q T A E M A A R A H D V A A L A
pG41-AP2dom (468) H P I Y R G V R Q R N - S G K W V C E L R E P N K K T R I W L G T F Q T A E M A A R A H D V A A I A
pG40-AP2dom (472) H P I Y R G V R Q R N - S G K W V S E V R E P N K K T R I W L G T F Q T A E M A A R A H D V A A L A
pG867-AP2dom (462) S S K Y K G V V P Q P - N G R W G A Q I Y - - E K H Q R V W L G T F N E E D E A A R A Y D V A V H R
pG8-AP2dom2 (476) S S K Y R G V T L H K - C G R W E A R M G Q F L G K K - - - - - - - - - - - - - - - A Y D K A A I N
pG2-AP2dom2 (478) S S K Y R G V T L H K - C G R W E A R M G Q F L G K K Y V Y L G L F D T E V E A A R A Y D K A A I K
pG8-AP2dom1 (475) S S Q Y R G V T F Y R R T G R W E S H I W D C G K Q V Y L G - - G F D T A H A A A R A Y D R A A I K
pG2-AP2Dom1 (477) S S Q Y R G V T F Y R R T G R W E S H I W D C G K Q V Y L G - - G F D T A H A A A R A Y D R A A I K
pG1090-AP2dom (464) Q L S Y R G I R R R K - W G K W V S E I R E P G K K T R I W L G S Y E T A E M A A A A Y D A A A L H
pG3656-AP2dom_maize (442) R R Q Y R G V R M R K - W G K W V A E I R E P H K R T R P R L R S Y A T A V A A A R A Y D T A V F Y
pG24-AP2dom (444) L K P Y K G I R M R K - W G K W V A E I R E P N K R S R I W L G S Y A T P E A A A R A Y D T A V F Y
pG12-AP2dom (446) D K P Y K G I R M R K - W G K W V A E I R E P N K R S R I W L G S Y S T P E A A A R A Y D T A V F Y
pG1379-AP2dom (448) D R P Y K G I R M R K - W G K W V A E I R E P N K R S R L W L G S Y S T P E A A A R A Y D T A V F Y
pG1277-AP2dom (450) E R P F K G I R M R K - W G K W V A E I R E P N K R S R L W L G S Y S T P E A A A R A Y D T A V F Y
pG872 _AP2dom (432) Q S K Y K G V R K R K - W G K W V S E I R L P H S R E R I W L G S Y D T P E K A A R A F D A A Q F C
pG2576-AP2dom (474) Q S K Y K G V R K R K - W G K W V S E I R L P N S R E R I W L G S Y D T P E K A A R A F D A A L Y C
pG3655-AP2dom_rice(jap) (436) R R K Y K G V R L R Q - W G K W A A E I R L P S S C E R I W L G S Y D T P E K A A R A F D A A F I C
pG3653-AP2dom_rice(jap) (438) E R K Y R G V R L R Q - W G K W V A E I R L P N S L K R I W L G S Y D S P E K A A R A F D A A F I C
pG3652-AP2dom_rice(jap) (440) E T R Y K G V R L R Q - W G K W V A E I R L P N S R K R I W L G S Y Y T P E K A A R A F D A A F I C
pG3654-AP2dom_rice(jap) (434) T T K Y R G V R L R K - W G K W V S E I R L P N S R E R I W L G S Y D T P E E A A R A F D A A F V C
pG47_AP2dom (667) Q S K Y K G I R R R K - W G K W V S E I R V P G T R D R L W L G S F S T A E G A A V A H D V A F F C
pG3645-AP2dom_B_rapa (668) Q S K Y K G I R R R K - W G K W V S E I R V P G T R D R L W L G S F S T A E G A A V A H D V A F Y C
pG3646-AP2dom_B_oleracea (669) Q A K Y K G I R R R K - W G K W V S E I R V P A T R E R L W L G S F S T A E G A A V A H D V A F Y C
pG2133-AP2dom (670) Q S K Y K G I R R R K - W G K W V S E I R V P G T R Q R L W L G S F S T A E G A A V A H D V A F Y C
pG3648-AP2dom (M.truncatula 453) N K K F K G V R R R K - W G K W V S E I R V P G T Q E R L W L G T Y A T P E A A A V A H D V A F Y C
pG3643-AP2dom_soy (671) N N K L K G V R R R K - W G K W V S E I R V P G T Q E R L W L G T Y A T P E A A A V A H D V A V Y C
pG3647-AP2Dom Z. elegans (672) Q K T Y K G V R C R R - W G K W V S E I R V P G S R E R L W L G T Y S T P E G A A V A H D V A S Y C
pG3651-AP2dom_rice(jap) (673) R C R Y R G V R R R R - W G K W V S E I R V P G T R E R L W L G S Y A T P E A A A V A H D T A V Y F
pG3644-AP2dom_rice(jap) (674) R C R Y R G V R R R R - W G K W V S E I R V P G T R E R L W L G S Y A T P E A A A V A H D T A V Y F
pG3650-AP2dom_maize (452) R C R Y R G V R R R A - W G K W V S E I R V P G T R E R L W L G S Y A A P E A A A V A H D A A A C L
pG3649-AP2dom_rice(jap) (452) M M R Y R G V R R R R - W G K W V S E I R V P G T R E R L W L G S Y A T A E A A A V A H D A A V C L
pG3657-AP2dom_rice(jap) (456) V R P Y K G V R M R S - W G S W V S E I R A P H Q K R R I W L G S Y A T P E A A A R A Y D A A L L C
pG2294-AP2dom (458) M K K Y K G V R M R S - W G S W V S E I R A P N Q K T R I W L G S Y S T A E A A A R A Y D A A L L C
pG2115 -AP2dom (460) I K K Y K G V R M R S - W G S W V S E I R A P N Q K T R I W L G S Y S T A E A A A R A Y D V A L L C
(675) (676) (680) (678) . Y K G V R R . W G K W V S E I R . P R R . W L G S Y T E . A A R A . D . A .

Fig. 5

SEQ ID NOs: added

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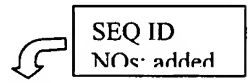
pG3680 (114)
pG2991 (48)
pG2990 (46)
pG2989 (44)
pG2995 (56)
pG2992 (50)
pG3000 (64)
pG3663 (102)
pG2998 (62)
pG3692 (124)
pG2999 (14)
pG2994 (54)
pG2993 (52)
pG3683 (116)
pG2996 (58)
pG3668 (104)
pG3671 (108)
pG3674 (110)
pG3670 (106)
pG3675 (112)
pG2997 (60)
pG3690 (122) M E Y K R S S H V E E E E E E E E E D D E E E D E E E Q G
pG3694 (126)
pG3685 (118)
pG3686 (120)
pG3695 (128)
pG3001 (66)

FIG. 8A

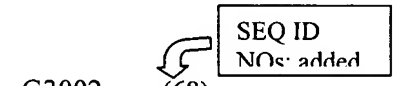


40 50 60

pG3002	(68)
pG3680	(114)
pG2991	(48)
pG2990	(46)
pG2989	(44)
pG2995	(56)
pG2992	(50)
pG3000	(64)
pG3663	(102)
pG2998	(62)
pG3692	(124)
pG2999	(14)
pG2994	(54)
pG2993	(52)
pG3683	(116)
pG2996	(58)
pG3668	(104)
pG3671	(108)
pG3674	(110)
pG3670	(106)
pG3675	(112)
pG2997	(60)
pG3690	(122)
pG3694	(126)
pG3685	(118)
pG3686	(120)
pG3695	(128)
pG3001	(66)

H H Q Y T T A A A Q Q Q L H P Q V L G S S A S S P S S L M D

FIG. 8B



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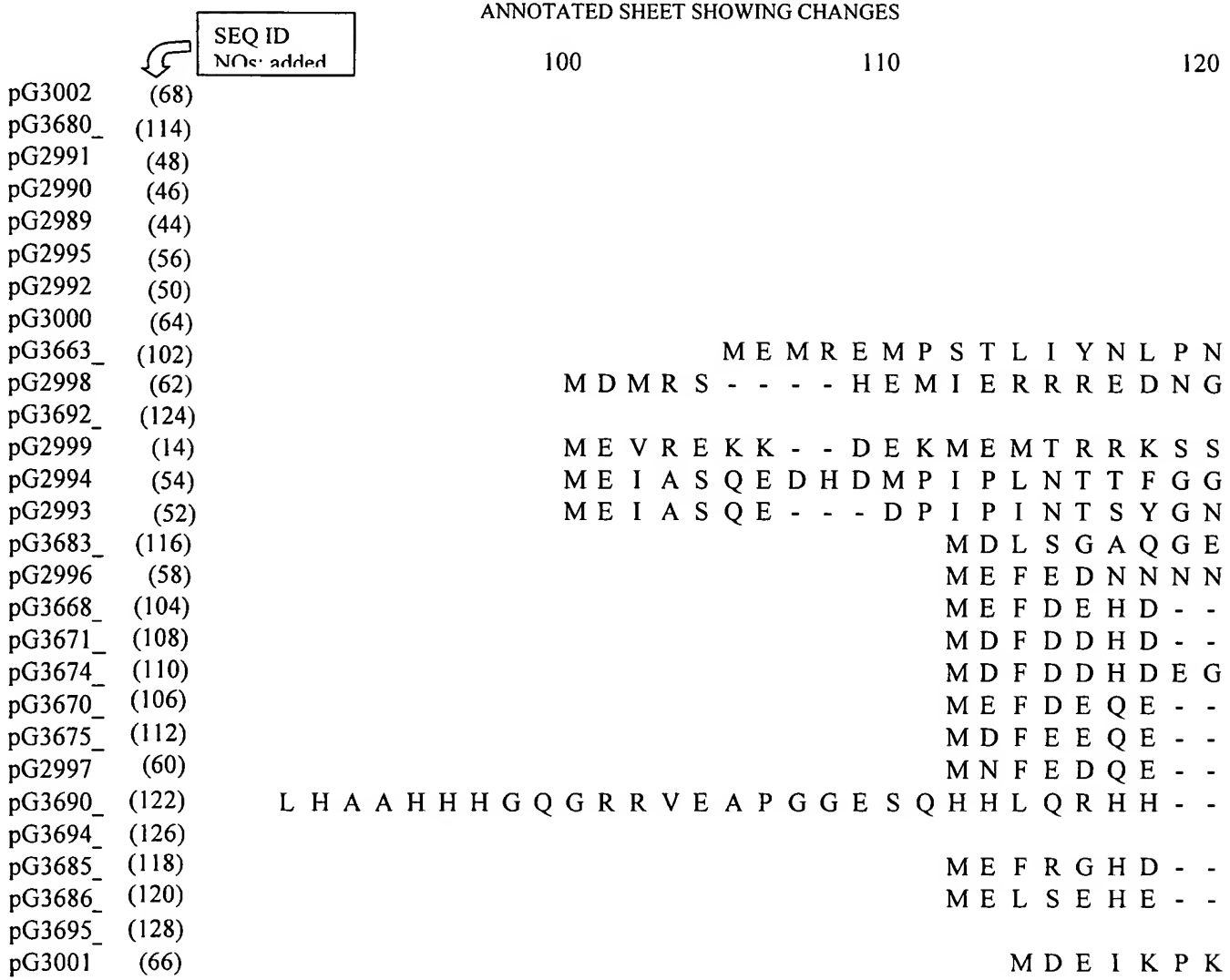
pG3680_	(114)			
pG2991	(48)			
pG2990	(46)			
pG2989	(44)			
pG2995	(56)			
pG2992	(50)			
pG3000	(64)			
pG3663_	(102)			
pG2998	(62)			
pG3692_	(124)			
pG2999	(14)			
pG2994	(54)			
pG2993	(52)			
pG3683_	(116)			
pG2996	(58)			
pG3668_	(104)			
pG3671_	(108)			
pG3674_	(110)			
pG3670_	(106)			
pG3675_	(112)			
pG2997	(60)			
pG3690_	(122)	S A A F S R P L L P P N L S L V S P S A A A A A A P G G S Y		
pG3694_	(126)			
pG3685_	(118)			
pG3686_	(120)			
pG3695_	(128)			
pG3001	(66)			

FIG. 8C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120
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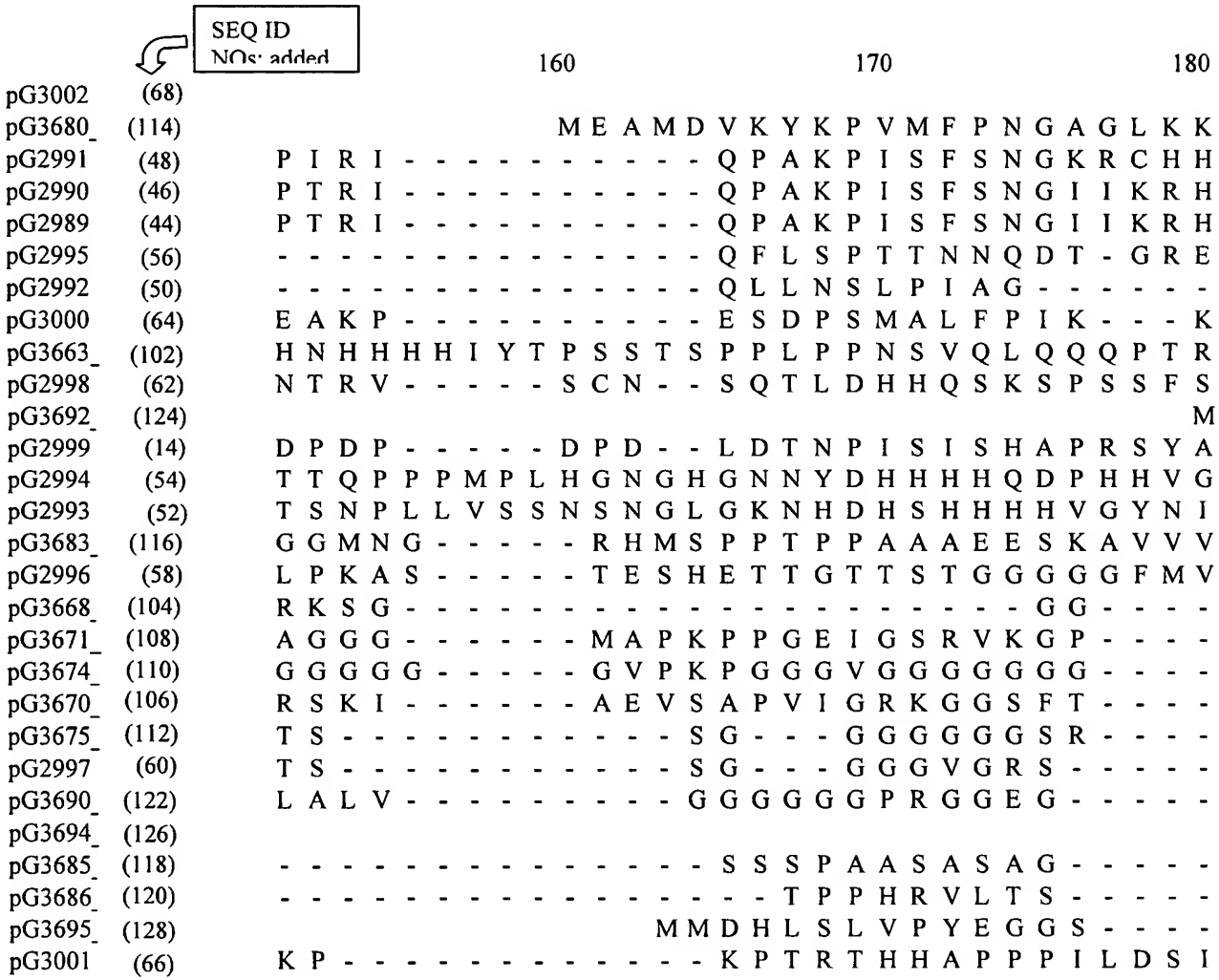
pG2990 (46)
pG2989 (44)
pG2995 (56)
pG2992 (50)
pG3000 (64)
pG3663_ (102) M E M R E M P S T L I Y N L P N
pG2998 (62) M D M R S - - - - H E M I E R R R E D N G
pG3692_ (124)
pG2999 (14) M E V R E K K - - D E K M E M T R R K S S
pG2994 (54) M E I A S Q E D H D M P I P L N T T F G G
pG2993 (52) M E I A S Q E - - - D P I P I N T S Y G N
pG3683_ (116) M D L S G A Q G E
pG2996 (58) M E F E D N N N N
pG3668_ (104) M E F D E H D - -
pG3671_ (108) M D F D D H D - -
pG3674_ (110) M D F D D H D E G
pG3670_ (106) M E F D E Q E - -
pG3675_ (112) M D F E E Q E - -
pG2997 (60) M N F E D Q E - -
pG3690_ (122) L H A A H H H G Q G R R V E A P G G E S Q H H L Q R H H - -
pG3694_ (126)
pG3685_ (118) M E F R G H D - -
pG3686_ (120) M E L S E H E - -
pG3695_ (128)
pG3001 (66) M D E I K P K

FIG. 8D

SEQ ID NOs: added

		130	140	150
pG3002	(68)			
pG3680	(114)			
pG2991	(48)	MDVIATTTTIVSDLDSRQPEIEA		
pG2990	(46)	MMDMTPTITTTTTPTPKSPEPESET		
pG2989	(44)	MLEVRSMDMTPKSPEPESET		
pG2995	(56)	MSSLS-KPNR--		
pG2992	(50)	MDLSS-KPQQ--		
pG3000	(64)	MELGGKCNAITTTTMISTEVKPHTDPEP		
pG3663	(102)	RDSSSPSLPSSSDQPSQTHTIIFNHPPKLS		
pG2998	(62)	--NNNGGVVISNIISTNIDDN---CNGNNN		
pG3692	(124)			
pG2999	(14)	--ALDHHRLPPYTYSQTANKEKPTTKRNGS		
pG2994	(54)	--GGSHGHMIHHHDHHAANSA-PPTHNNNN		
pG2993	(52)	S-GGGHGNMNHHHHANSA-----PSSLNIT		
pG3683	(116)	LPLPMHAAASPYLG-LHHDHHHHHGGGGGG		
pG2996	(58)	NDEEQEEDMNLHEEEEDDDAVYDSPPLSRV		
pG3668	(104)	---EQEEEVGIQL----TPGSFDAVGNSGR		
pG3671	(108)	---DGDEEMPPMP----VSSSYETPPQHGL		
pG3674	(110)	---DGDEEMPPMP----LSSGYDAPMQPGL		
pG3670	(106)	---EQDEEMGIPESPPPVPASYDPLLNSAP		
pG3675	(112)	---EEMEMSGANP-----TGGYDSLSGEGA		
pG2997	(60)	---EDMEMSGVNP-----PCGYDSLSGEGA		
pG3690	(122)	---EPARNGVLGGVA---------GAHAAST		
pG3694	(126)			
pG3685	(118)	---EPVDEMGVAYGR---------TPPSS--		
pG3686	(120)	---EDAGDVGGGCS----------SPP----		
pG3695	(128)			
pG3001	(66)	KEENSKRRRNVKPICRETGDHVHYLPTCKT		

FIG. 8E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170
180
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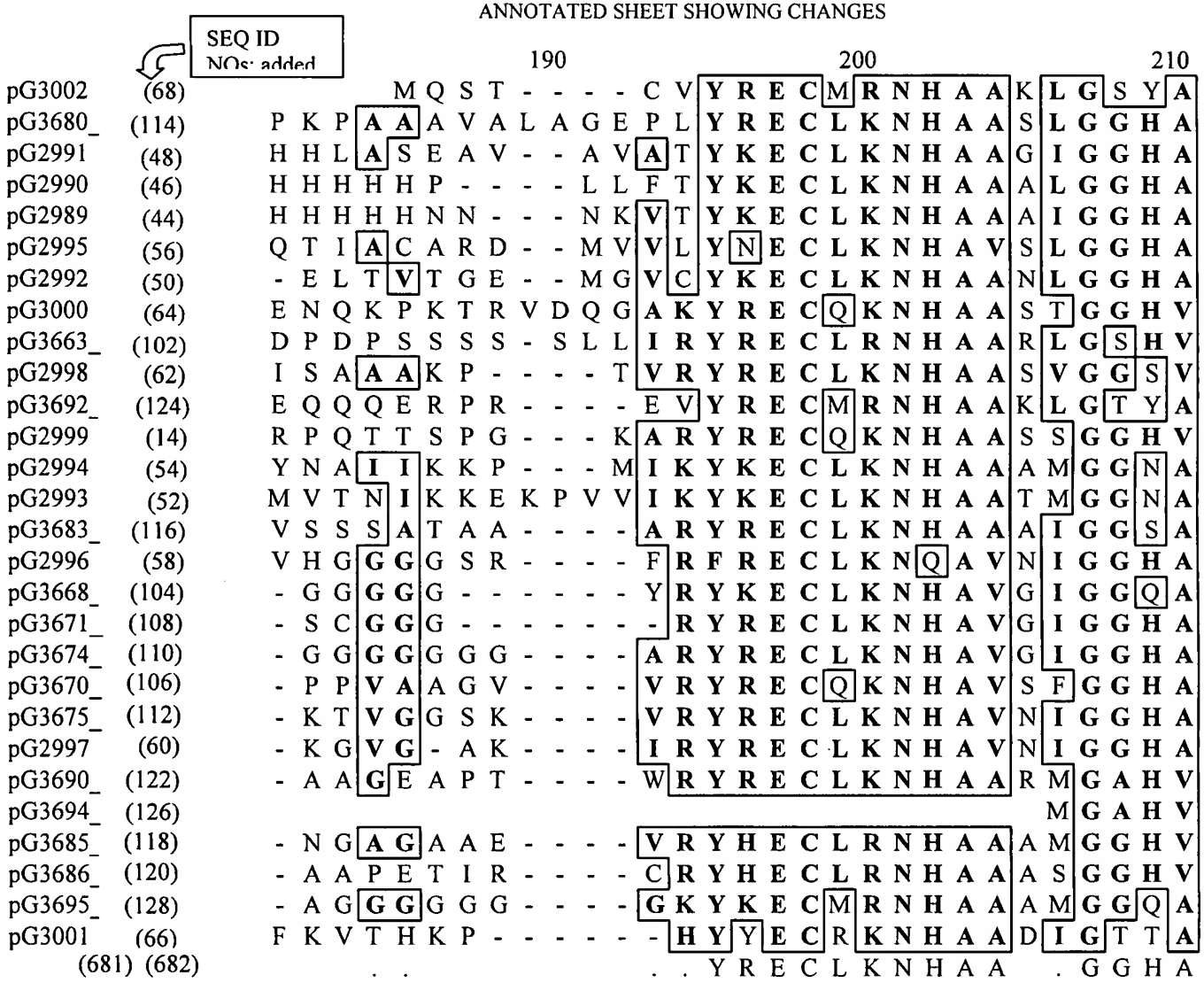
pG2991 (48) P I R I - - - - - - - - - - - - Q P A K P I S F S N G K R C H H
pG2990 (46) P T R I - - - - - - - - - - - - Q P A K P I S F S N G I I K R H
pG2989 (44) P T R I - - - - - - - - - - - - Q P A K P I S F S N G I I K R H
pG2995 (56) - - - - - - - - - - - - - - - - Q F L S P T T N N Q D T - G R E
pG2992 (50) - - - - - - - - - - - - - - - - Q L L N S L P I A G - - - - - -
pG3000 (64) E A K P - - - - - - - - - - - - E S D P S M A L F P I K - - - K
pG3663_ (102) H N H H H H I Y T P S S T S P P L P P N S V Q L Q Q Q P T R
pG2998 (62) N T R V - - - - - S C N - - S Q T L D H H Q S K S P S S F S
pG3692_ (124) M
pG2999 (14) D P D P - - - - - D P D - - L D T N P I S I S H A P R S Y A
pG2994 (54) T T Q P P P M P L H G N G H G N N Y D H H H H Q D P H H V G
pG2993 (52) T S N P L L V S S N S N G L G K N H D H S H H H H V G Y N I
pG3683_ (116) G G M N G - - - - - R H M S P P T P P A A A E E S K A V V V
pG2996 (58) L P K A S - - - - - T E S H E T T G T T S T G G G G G F M V
pG3668_ (104) R K S G - G G - - - -
pG3671_ (108) A G G G - - - - - - M A P K P P G E I G S R V K G P - - - -
pG3674_ (110) G G G G G - - - - - G V P K P G G G V G G G G G G G - - - -
pG3670_ (106) R S K I - - - - - - A E V S A P V I G R K G G S F T - - - -
pG3675_ (112) T S - - - - - - - - - - - - S G - - - G G G G G G S R - - - -
pG2997 (60) T S - - - - - - - - - - - - S G - - - G G G V G R S - - - - -
pG3690_ (122) L A L V - - - - - - - - - - G G G G G G P R G G E G - - - - -
pG3694_ (126)
pG3685_ (118) - - - - - - - - - - - - - - - - S S S P A A S A S A G - - - - -
pG3686_ (120) - - - - - - - - - - - - - - - - - - T P P H R V L T S - - - - -
pG3695_ (128) M M D H L S L V P Y E G G S - - - -
pG3001 (66) K P - - - - - - - - - - - - - - K P T R T H H A P P P I L D S I

FIG. 8F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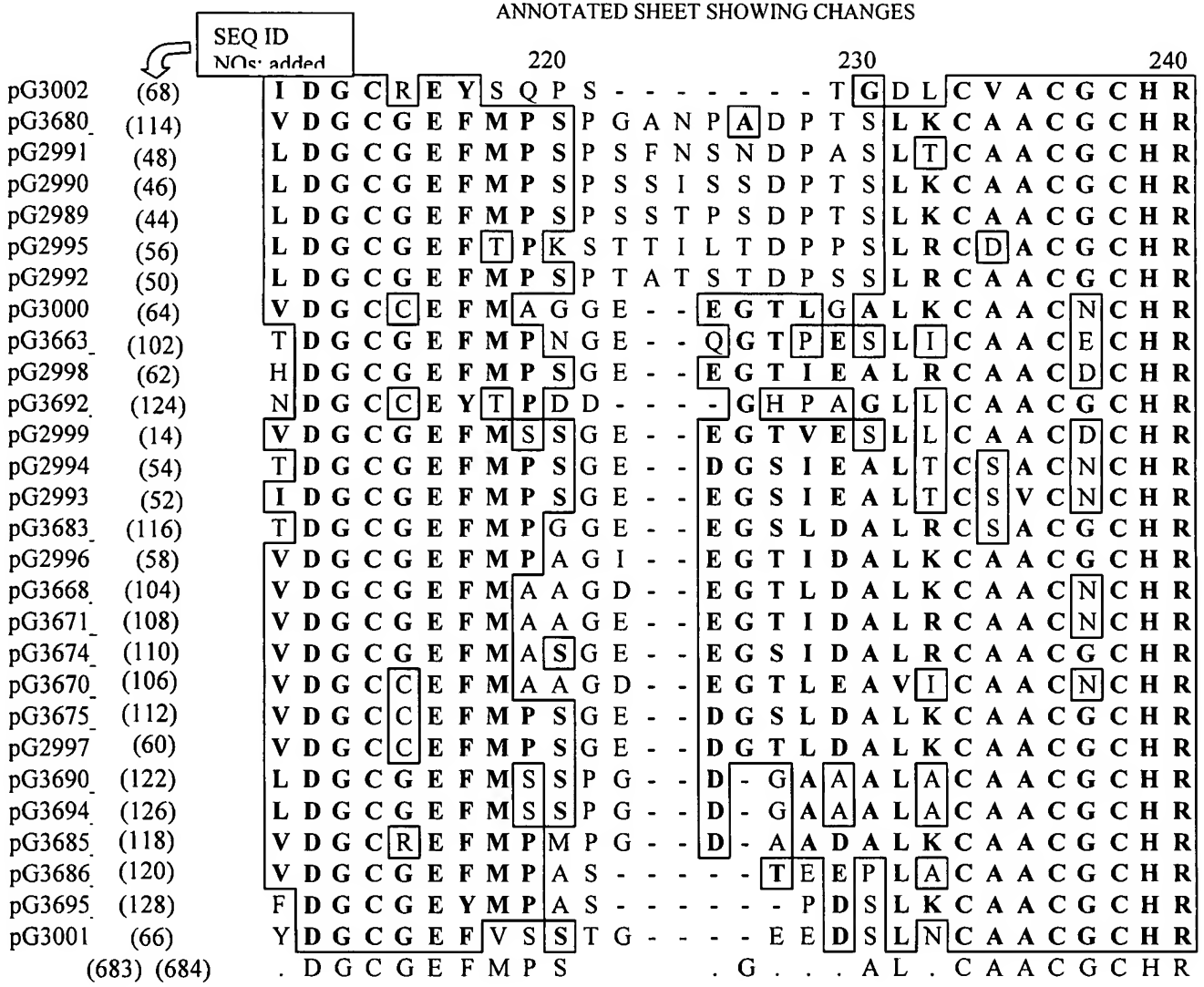
pG2991 (48) H H L A S E A V - - A V A T Y K E C L K N H A A G I G G H A
pG2990 (46) H H H H H P - - - - L L F T Y K E C L K N H A A A L G G H A
pG2989 (44) H H H H H N N - - - N K V T Y K E C L K N H A A A I G G H A
pG2995 (56) Q T I A C A R D - - M V V L Y N E C L K N H A V S L G G H A
pG2992 (50) - E L T V T G E - - M G V C Y K E C L K N H A A N L G G H A
pG3000 (64) E N Q K P K T R V D Q G A K Y R E C Q K N H A A S T G G H V
pG3663_ (102) D P D P S S S S - S L L I R Y R E C L R N H A A R L G S H V
pG2998 (62) I S A A A K P - - - - T V R Y R E C L K N H A A S V G G S V
pG3692_ (124) E Q Q Q E R P R - - - - E V Y R E C M R N H A A K L G T Y A
pG2999 (14) R P Q T T S P G - - - K A R Y R E C Q K N H A A S S G G H V
pG2994 (54) Y N A I I K K P - - - M I K Y K E C L K N H A A A M G G N A
pG2993 (52) M V T N I K K E K P V V I K Y K E C L K N H A A T M G G N A
pG3683_ (116) V S S S A T A A - - - - A R Y R E C L K N H A A A I G G S A
pG2996 (58) V H G G G G S R - - - - F R F R E C L K N Q A V N I G G H A
pG3668_ (104) - G G G G G - - - - - - Y R Y K E C L K N H A V G I G G Q A
pG3671_ (108) - S C G G G - - - - - - - R Y R E C L K N H A V G I G G H A
pG3674_ (110) - G G G G G G G - - - - A R Y R E C L K N H A V G I G G H A
pG3670_ (106) - P P V A A G V - - - - V R Y R E C Q K N H A V S F G G H A
pG3675_ (112) - K T V G G S K - - - - V R Y R E C L K N H A V N I G G H A
pG2997 (60) - K G V G - A K - - - - I R Y R E C L K N H A V N I G G H A
pG3690_ (122) - A A G E A P T - - - - W R Y R E C L K N H A A R M G A H V
pG3694_ (126) M G A H V
pG3685_ (118) - N G A G A A E - - - - V R Y H E C L R N H A A A M G G H V
pG3686_ (120) - A A P E T I R - - - - C R Y H E C L R N H A A A S G G H V
pG3695_ (128) - A G G G G G G - - - - G K Y K E C M R N H A A A M G G Q A
pG3001 (66) F K V T H K P - - - - - - H Y Y E C R K N H A A D I G T T A
(681) (682) . . . . Y R E C L K N H A A . G G H A

FIG. 8G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pG2991 (48) L D G C G E F M P S P S F N S N D P A S L T C A A C G C H R
pG2990 (46) L D G C G E F M P S P S S I S S D P T S L K C A A C G C H R
pG2989 (44) L D G C G E F M P S P S S T P S D P T S L K C A A C G C H R
pG2995 (56) L D G C G E F T P K S T T I L T D P P S L R C D A C G C H R
pG2992 (50) L D G C G E F M P S P T A T S T D P S S L R C A A C G C H R
pG3000 (64) V D G C C E F M A G G E - - E G T L G A L K C A A C N C H R
pG3663 (102) T D G C G E F M P N G E - - Q G T P E S L I C A A C E C H R
pG2998 (62) H D G C G E F M P S G E - - E G T I E A L R C A A C D C H R
pG3692 (124) N D G C C E Y T P D D - - - - G H P A G L L C A A C G C H R
pG2999 (14) V D G C G E F M S S G E - - E G T V E S L L C A A C D C H R
pG2994 (54) T D G C G E F M P S G E - - D G S I E A L T C S A C N C H R
pG2993 (52) I D G C G E F M P S G E - - E G S I E A L T C S V C N C H R
pG3683 (116) T D G C G E F M P G G E - - E G S L D A L R C S A C G C H R
pG2996 (58) V D G C G E F M P A G I - - E G T I D A L K C A A C G C H R
pG3668 (104) V D G C G E F M A A G D - - E G T L D A L K C A A C N C H R
pG3671 (108) V D G C G E F M A A G E - - E G T I D A L R C A A C N C H R
pG3674 (110) V D G C G E F M A S G E - - E G S I D A L R C A A C G C H R
pG3670 (106) V D G C C E F M A A G D - - E G T L E A V I C A A C N C H R
pG3675 (112) V D G C C E F M P S G E - - D G S L D A L K C A A C G C H R
pG2997 (60) V D G C C E F M P S G E - - D G T L D A L K C A A C G C H R
pG3690 (122) L D G C G E F M S S P G - - D - G A A A L A C A A C G C H R
pG3694 (126) L D G C G E F M S S P G - - D - G A A A L A C A A C G C H R
pG3685 (118) V D G C R E F M P M P G - - D - A A D A L K C A A C G C H R
pG3686 (120) V D G C G E F M P A S - - - - - T E E P L A C A A C G C H R
pG3695 (128) F D G C G E Y M P A S - - - - - - - P D S L K C A A C G C H R
pG3001 (66) Y D G C G E F V S S T G - - - - E E D S L N C A A C G C H R
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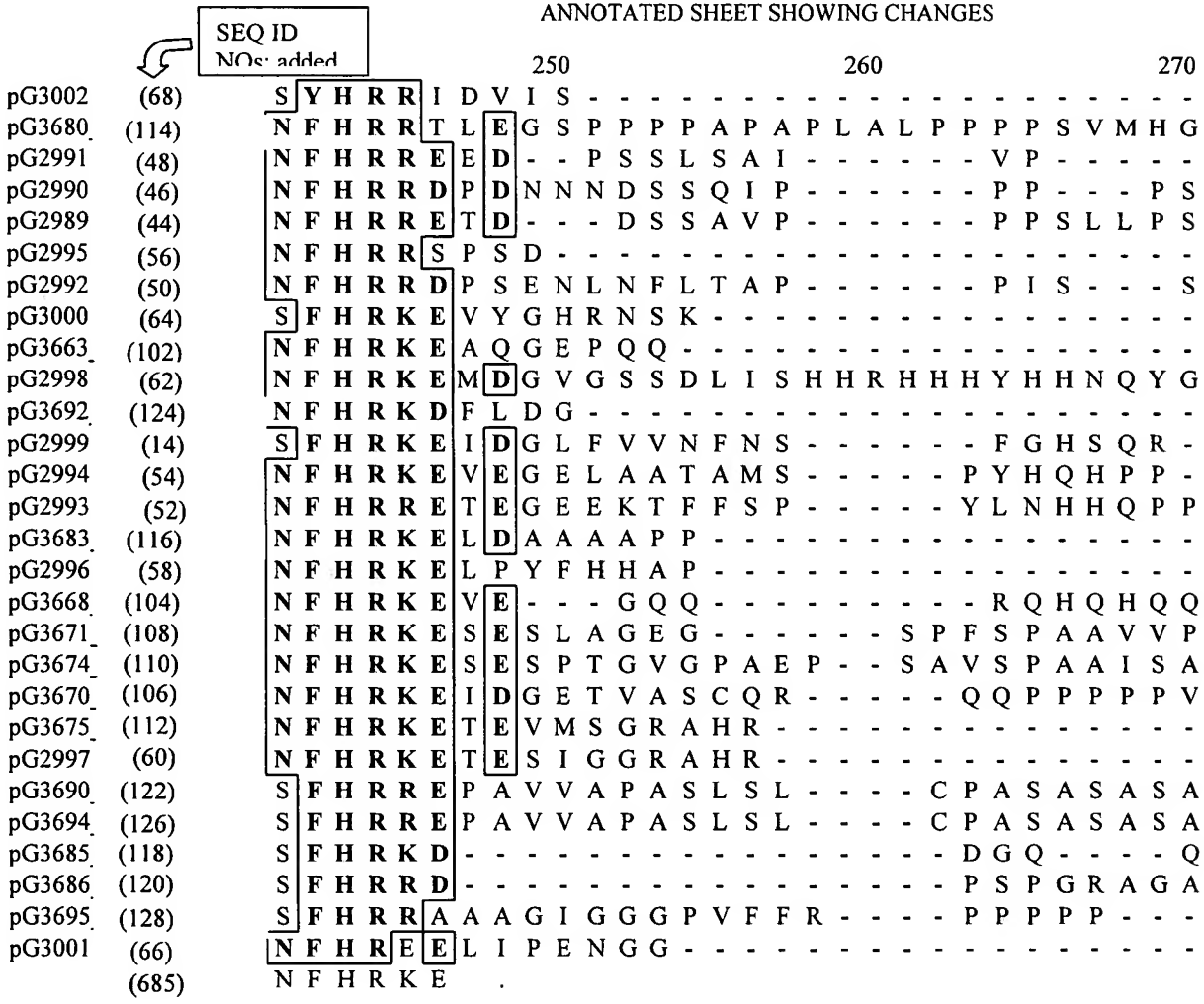
FIG. 8H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pG2990 (46) N F H R R D P D N N N D S S Q I P - - - - - - - P P - - - P S
pG2989 (44) N F H R R E T D - - - D S S A V P - - - - - - - P P S L L P S
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pG3000 (64) S F H R K E V Y G H R N S K - - - - - - - - - - - - - - - - -
pG3663 (102) N F H R K E A Q G E P Q Q - - - - - - - - - - - - - - - - - -
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pG3692 (124) N F H R K D F L D G -
pG2999 (14) S F H R K E I D G L F V V N F N S - - - - - - F G H S Q R -
pG2994 (54) N F H R K E V E G E L A A T A M S - - - - - P Y H Q H P P -
pG2993 (52) N F H R R E T E G E E K T F F S P - - - - - Y L N H H Q P P
pG3683 (116) N F H R K E L D A A A A P P - - - - - - - - - - - - - - - -
pG2996 (58) N F H R K E L P Y F H H A P - - - - - - - - - - - - - - - -
pG3668 (104) N F H R K E V E - - - G Q Q - - - - - - - - - R Q H Q H Q Q
pG3671 (108) N F H R K E S E S L A G E G - - - - - - - S P F S P A A V V P
pG3674 (110) N F H R K E S E S P T G V G P A E P - - S A V S P A A I S A
pG3670 (106) N F H R K E I D G E T V A S C Q R - - - - - Q Q P P P P P V
pG3675 (112) N F H R K E T E V M S G R A H R - - - - - - - - - - - - - -
pG2997 (60) N F H R K E T E S I G G R A H R - - - - - - - - - - - - - -
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pG3694 (126) S F H R R E P A V V A P A S L S L - - - - C P A S A S A S A
pG3685 (118) S F H R K D - - - - - - - - - - - - - - - - D G Q - - - - Q
pG3686 (120) S F H R R D - - - - - - - - - - - - - - - - P S P G R A G A
pG3695 (128) S F H R R A A A G I G G G P V F F R - - - - P P P P P - - -
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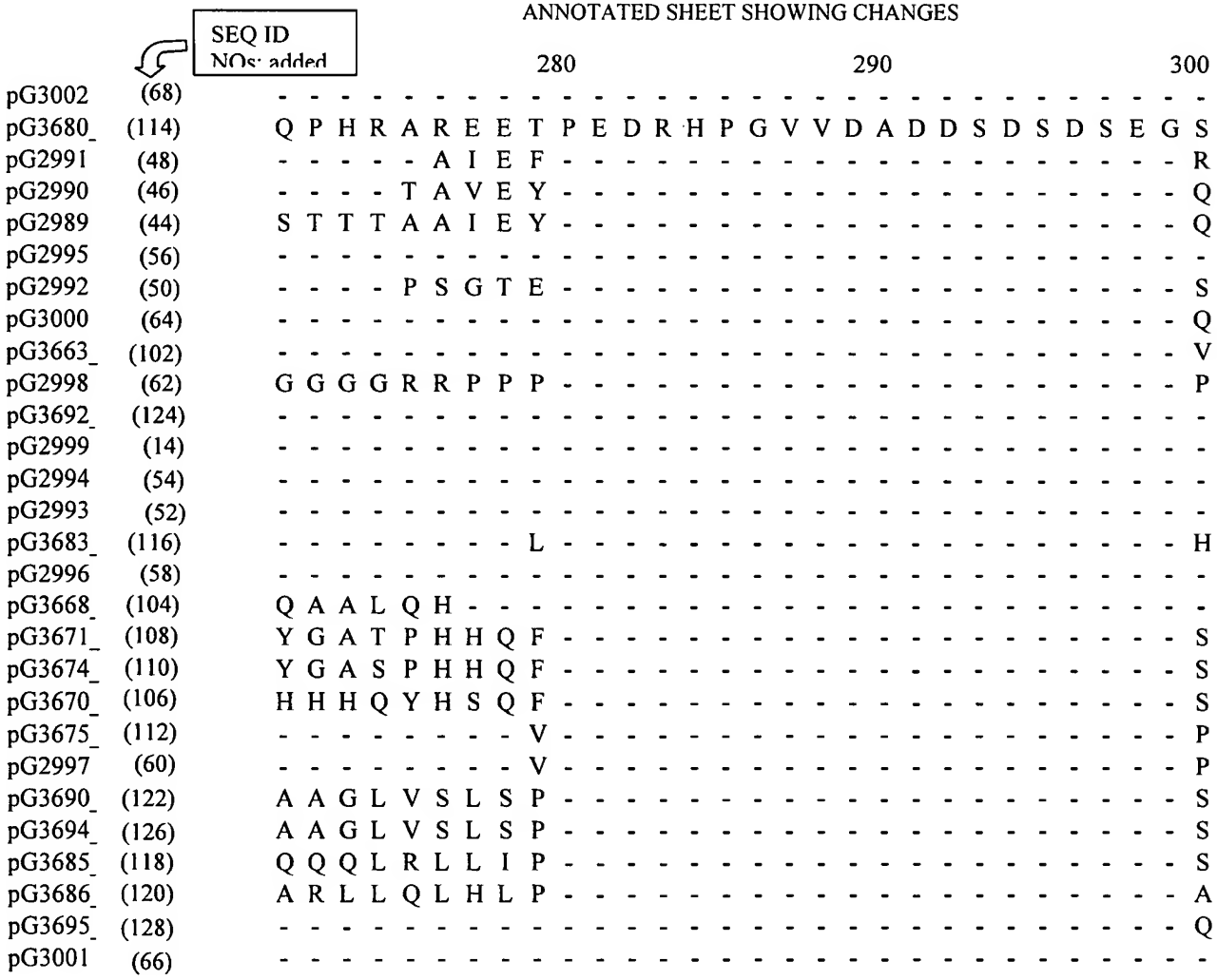
FIG. 8I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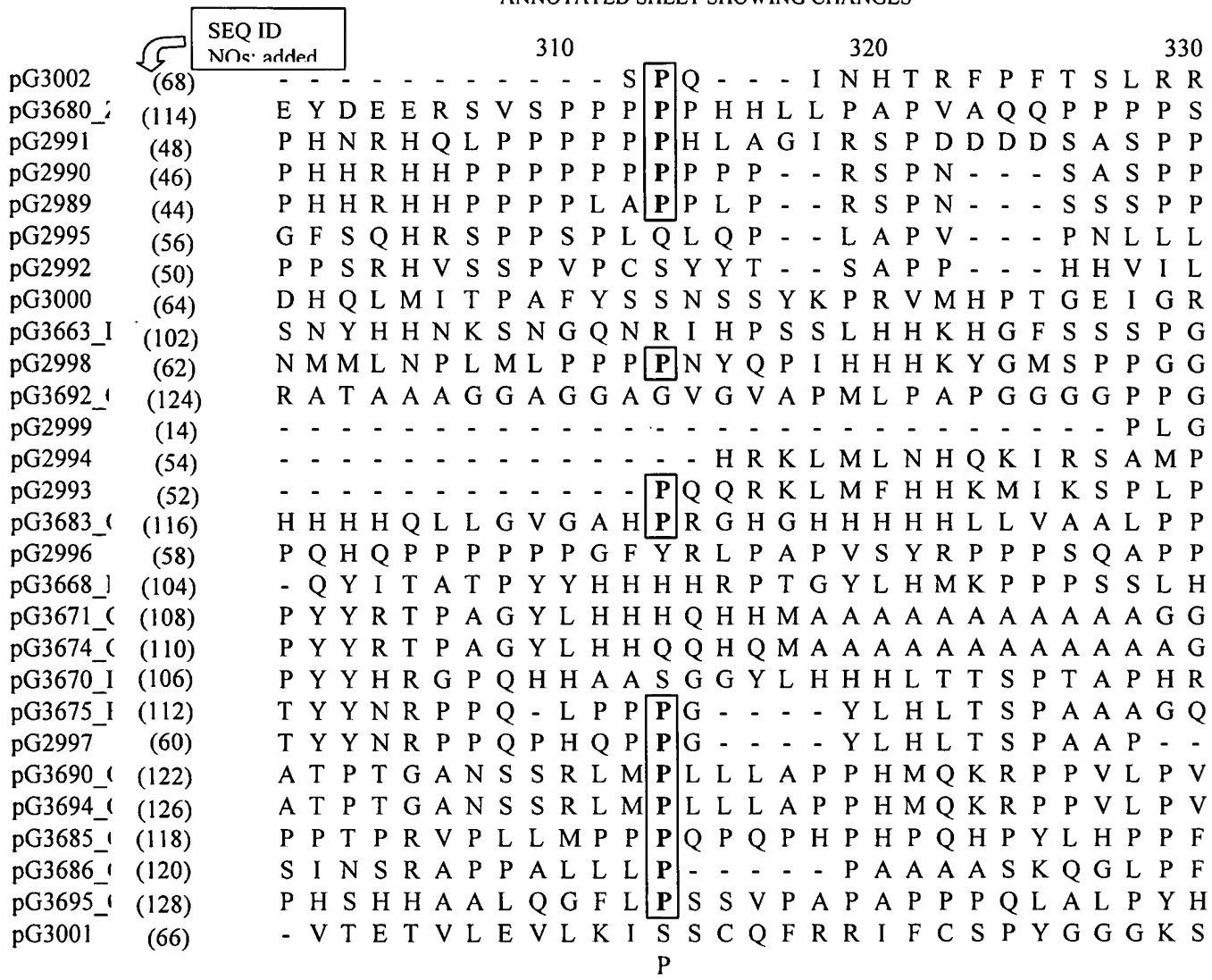
pG2990 (46) - - - - - T A V E Y - Q
pG2989 (44) S T T T A A I E Y - Q
pG2995 (56) -
pG2992 (50) - - - - - P S G T E - S
pG3000 (64) - Q
pG3663_ (102) - V
pG2998 (62) G G G G R R P P P - P
pG3692_ (124) -
pG2999 (14) -
pG2994 (54) -
pG2993 (52) -
pG3683_ (116) - - - - - - - - L - H
pG2996 (58) -
pG3668_ (104) Q A A L Q H -
pG3671_ (108) Y G A T P H H Q F - S
pG3674_ (110) Y G A S P H H Q F - S
pG3670_ (106) H H H Q Y H S Q F - S
pG3675_ (112) - - - - - - - - - V - P
pG2997 (60) - - - - - - - - - V - P
pG3690_ (122) A A G L V S L S P - S
pG3694_ (126) A A G L V S L S P - S
pG3685_ (118) Q Q Q L R L L I P - S
pG3686_ (120) A R L L Q L H L P - A
pG3695_ (128) - Q
pG3001 (66) -

FIG. 8J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pG2991 (48) P H N R H Q L P P P P P P H L A G I R S P D D D D S A S P P
pG2990 (46) P H H R H H P P P P P P P P P - - R S P N - - - S A S P P
pG2989 (44) P H H R H H P P P P L A P P L P - - R S P N - - - S S S P P
pG2995 (56) G F S Q H R S P P S P L Q L Q P - - L A P V - - - P N L L L
pG2992 (50) P P S R H V S S P V P C S Y Y T - - S A P P - - - H H V I L
pG3000 (64) D H Q L M I T P A F Y S S N S S Y K P R V M H P T G E I G R
pG3663_I (102) S N Y H H N K S N G Q N R I H P S S L H H K H G F S S S P G
pG2998 (62) N M M L N P L M L P P P P N Y Q P I H H H K Y G M S P P G G
pG3692_((124) R A T A A A G G A G G A G V G V A P M L P A P G G G G P P G
pG2999 (14) - P L G
pG2994 (54) - - - - - - - - - - - - - - - H R K L M L N H Q K I R S A M P
pG2993 (52) - - - - - - - - - - - - - P Q Q R K L M F H H K M I K S P L P
pG3683_((116) H H H H Q L L G V G A H P R G H G H H H H H L L V A A L P P
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pG3671_((108) P Y Y R T P A G Y L H H H Q H H M A A A A A A A A A A G G
pG3674_((110) P Y Y R T P A G Y L H H Q Q H Q M A A A A A A A A A A A A G
pG3670_I (106) P Y Y H R G P Q H H A A S G G Y L H H H L T T S P T A P H R
pG3675_I (112) T Y Y N R P P Q - L P P P G - - - - Y L H L T S P A A A G Q
pG2997 (60) T Y Y N R P P Q P H Q P P G - - - - Y L H L T S P A A P - -
pG3690_((122) A T P T G A N S S R L M P L L L A P P H M Q K R P P V L P V
pG3694_((126) A T P T G A N S S R L M P L L L A P P H M Q K R P P V L P V
pG3685_((118) P P T P R V P L L M P P P Q P Q P H P H P Q H P Y L H P P F
pG3686_((120) S I N S R A P P A L L L P - - - - - P A A A A S K Q G L P F
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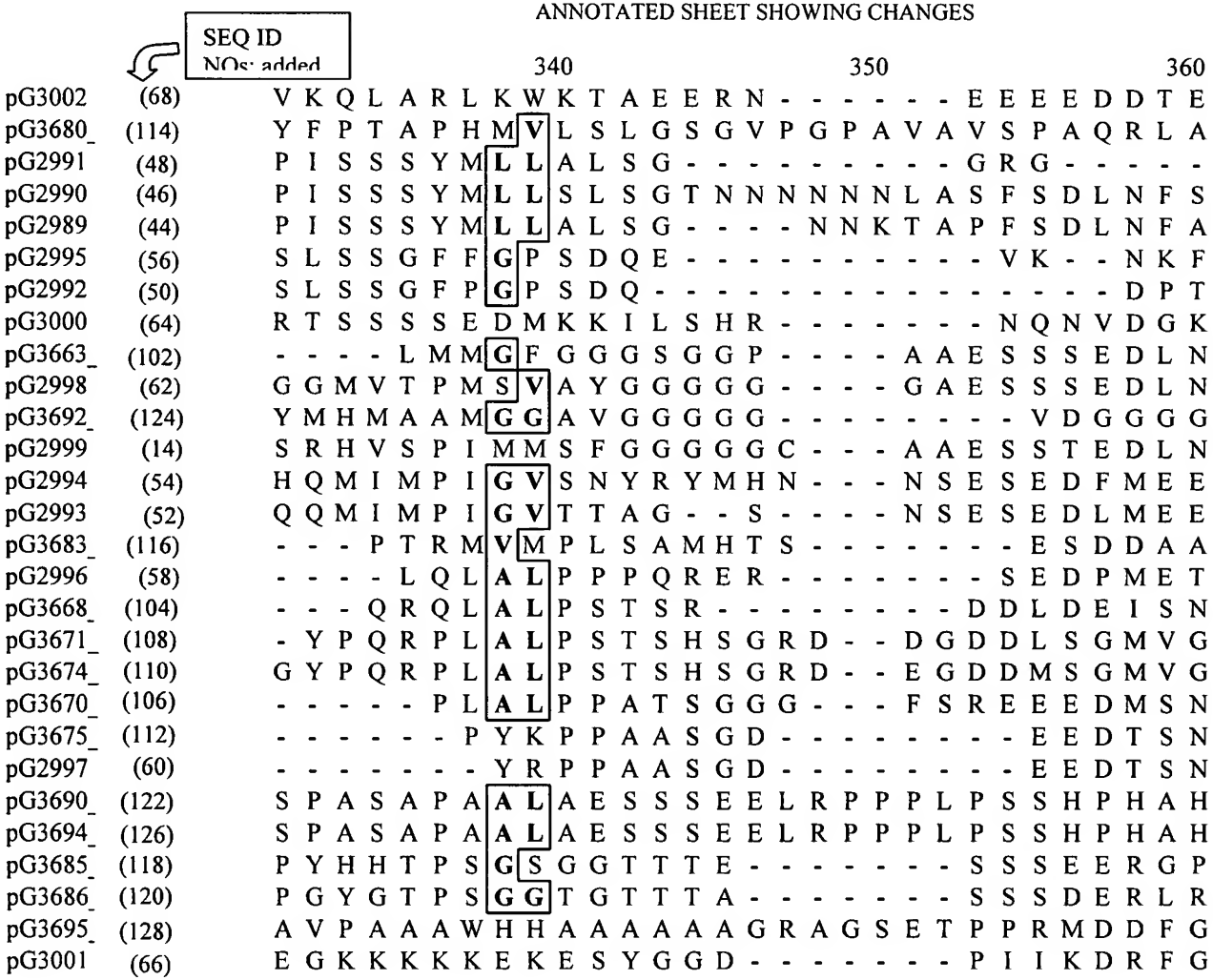
P

FIG. 8K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pG2990 (46) P I S S S Y M L L S L S G T N N N N N N L A S F S D L N F S
pG2989 (44) P I S S S Y M L L A L S G - - - - N N K T A P F S D L N F A
pG2995 (56) S L S S G F F G P S D Q E - - - - - - - - - - V K - - N K F
pG2992 (50) S L S S G F P G P S D Q - - - - - - - - - - - - - - - D P T
pG3000 (64) R T S S S S E D M K K I L S H R - - - - - - - N Q N V D G K
pG3663_ (102) - - - - L M M G F G G G S G G P - - - - A A E S S S E D L N
pG2998 (62) G G M V T P M S V A Y G G G G G - - - - G A E S S S E D L N
pG3692_ (124) Y M H M A A M G G A V G G G G G - - - - - - - - V D G G G G
pG2999 (14) S R H V S P I M M S F G G G G G C - - - A A E S S T E D L N
pG2994 (54) H Q M I M P I G V S N Y R Y M H N - - - N S E S E D F M E E
pG2993 (52) Q Q M I M P I G V T T A G - - S - - - - N S E S E D L M E E
pG3683_ (116) - - - P T R M V M P L S A M H T S - - - - - - - E S D D A A
pG2996 (58) - - - - L Q L A L P P P Q R E R - - - - - - - S E D P M E T
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pG3671_ (108) - Y P Q R P L A L P S T S H S G R D - - D G D D L S G M V G
pG3674_ (110) G Y P Q R P L A L P S T S H S G R D - - E G D D M S G M V G
pG3670_ (106) - - - - - P L A L P P A T S G G G - - - F S R E E E D M S N
pG3675_ (112) - - - - - - - P Y K P P A A S G D - - - - - - - - E E D T S N
pG2997 (60) - - - - - - - - Y R P P A A S G D - - - - - - - - E E D T S N
pG3690_ (122) S P A S A P A A L A E S S S E E L R P P P L P S S H P H A H
pG3694_ (126) S P A S A P A A L A E S S S E E L R P P P L P S S H P H A H
pG3685_ (118) P Y H H T P S G S G G T T T E - - - - - - - S S S E E R G P
pG3686_ (120) P G Y G T P S G G T G T T T A - - - - - - - S S S D E R L R
pG3695_ (128) A V P A A A W H H A A A A A A G R A G S E T P P R M D D F G
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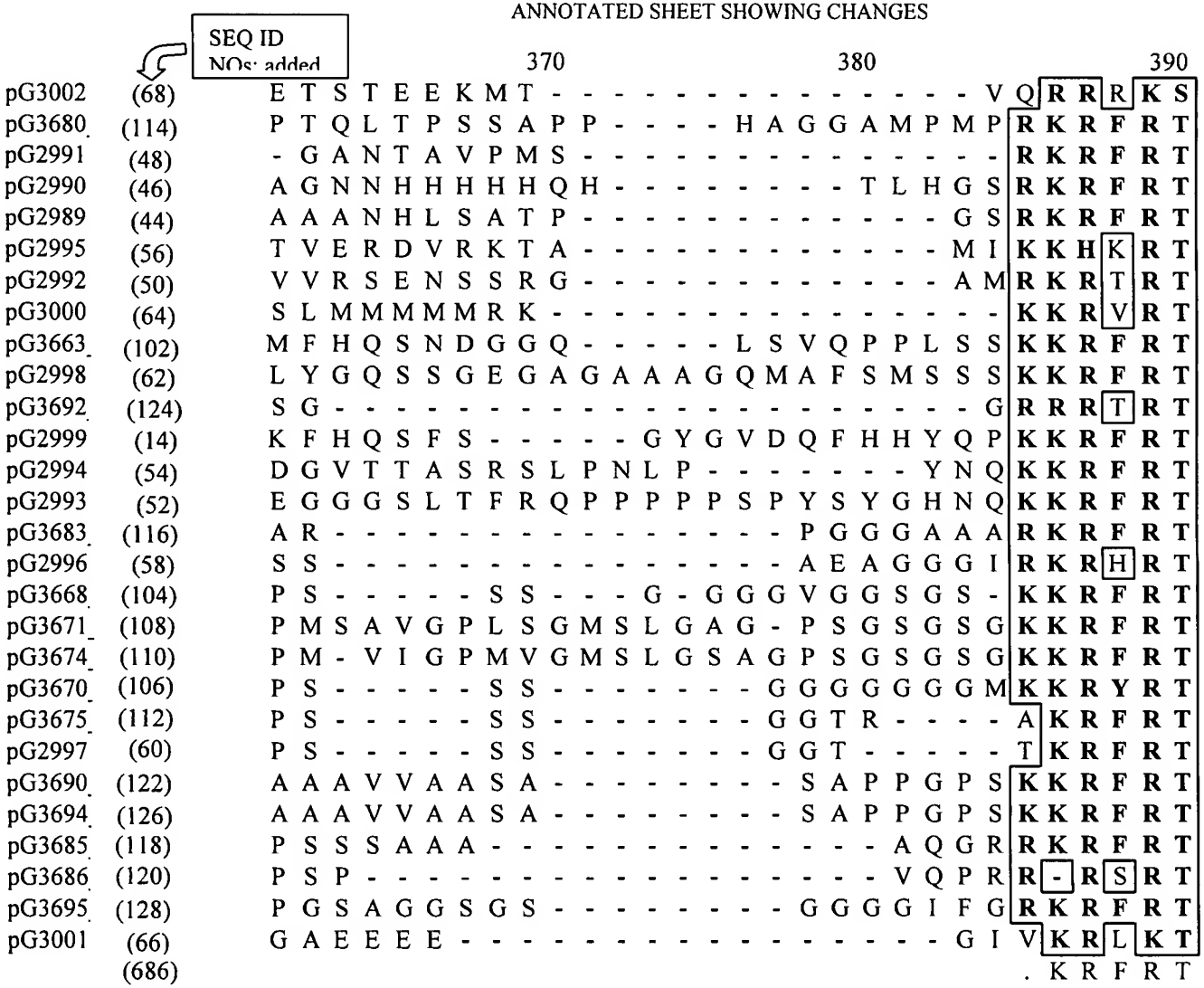
FIG. 8L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pG3692 (124) S G - G R R R T R T
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pG2997 (60) P S - - - - - - S S - - - - - - - - G G T - - - - - - T K R F R T
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pG3685 (118) P S S S A A A - - - - - - - - - - - - - - A Q G R R K R F R T
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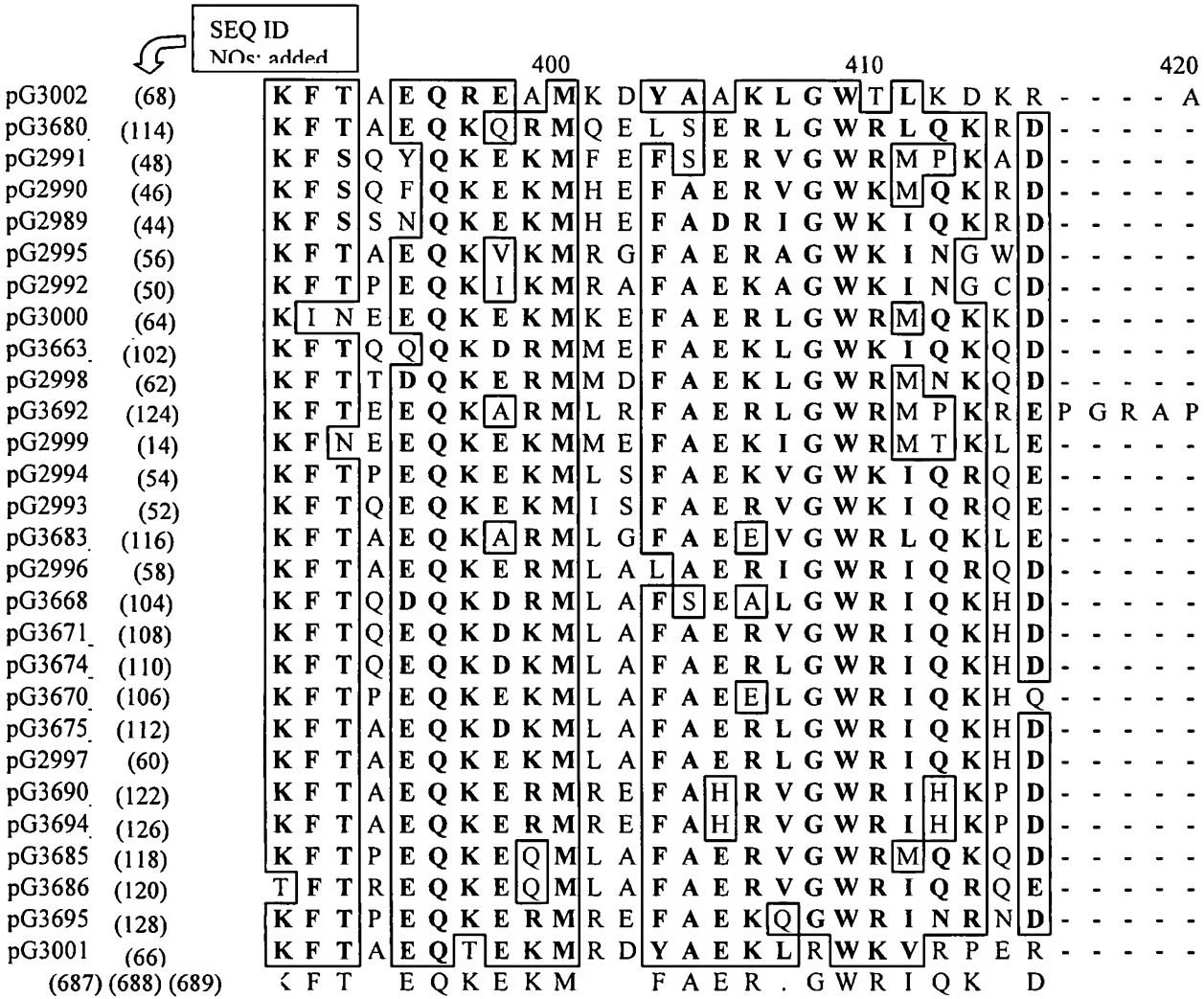
(686) . K R F R T

FIG. 8M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pG2991 (48) K F S Q Y Q K E K M F E F S E R V G W R M P K A D - - - - -
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pG2993 (52) K F T Q E Q K E K M I S F A E R V G W K I Q R Q E - - - - -
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pG3674 (110) K F T Q E Q K D K M L A F A E R L G W R I Q K H D - - - - -
pG3670 (106) K F T P E Q K E K M L A F A E E L G W R I Q K H Q - - - - -
pG3675 (112) K F T A E Q K D K M L A F A E R L G W R I Q K H D - - - - -
pG2997 (60) K F T A E Q K E K M L A F A E R L G W R I Q K H D - - - - -
pG3690 (122) K F T A E Q K E R M R E F A H R V G W R I H K P D - - - - -
pG3694 (126) K F T A E Q K E R M R E F A H R V G W R I H K P D - - - - -
pG3685 (118) K F T P E Q K E Q M L A F A E R V G W R M Q K Q D - - - - -
pG3686 (120) T F T R E Q K E Q M L A F A E R V G W R I Q R Q E - - - - -
pG3695 (128) K F T P E Q K E R M R E F A E K Q G W R I N R N D - - - - -
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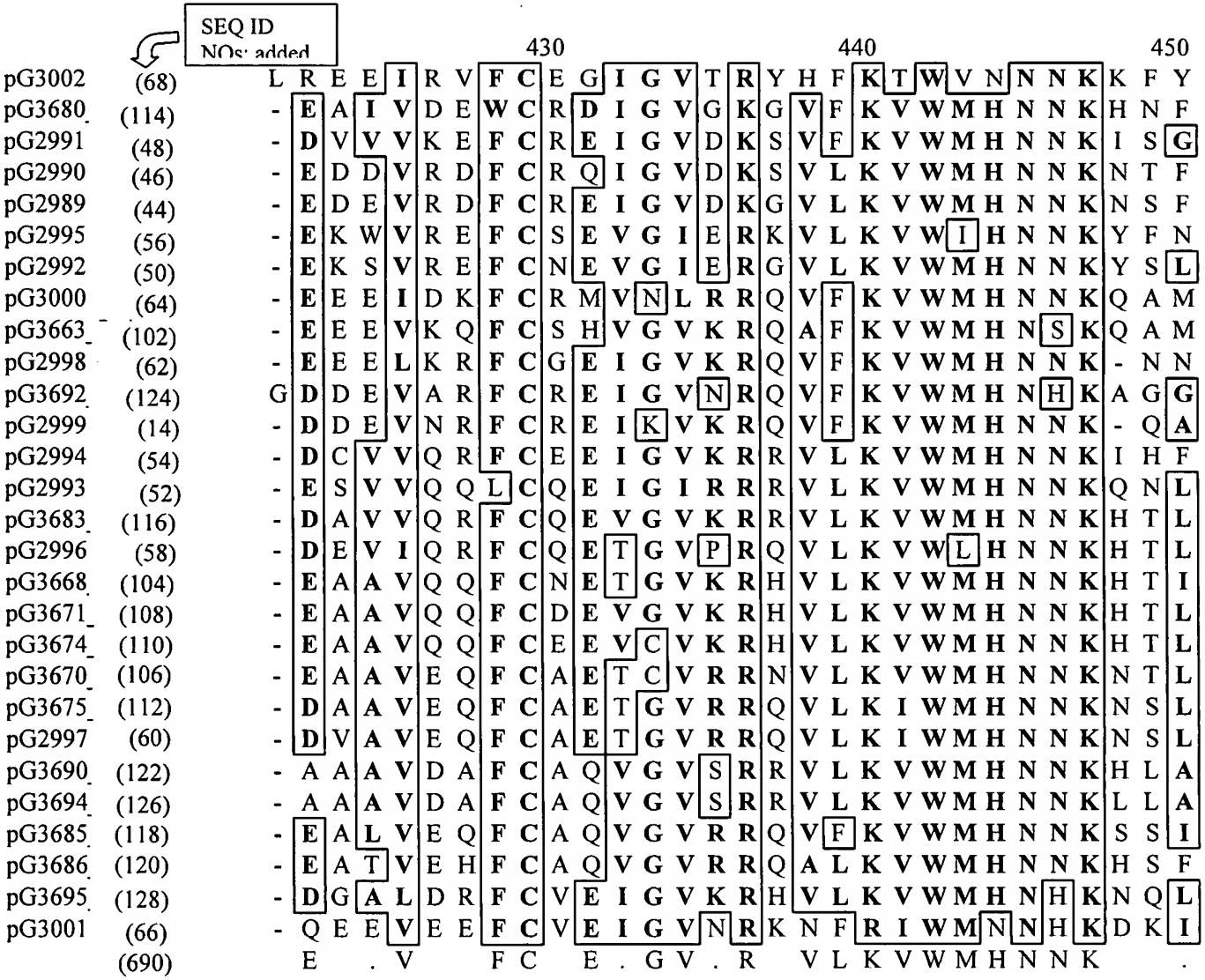
(687) (688) (689) < F T E Q K E K M F A E R . G W R I Q K D

FIG. 8N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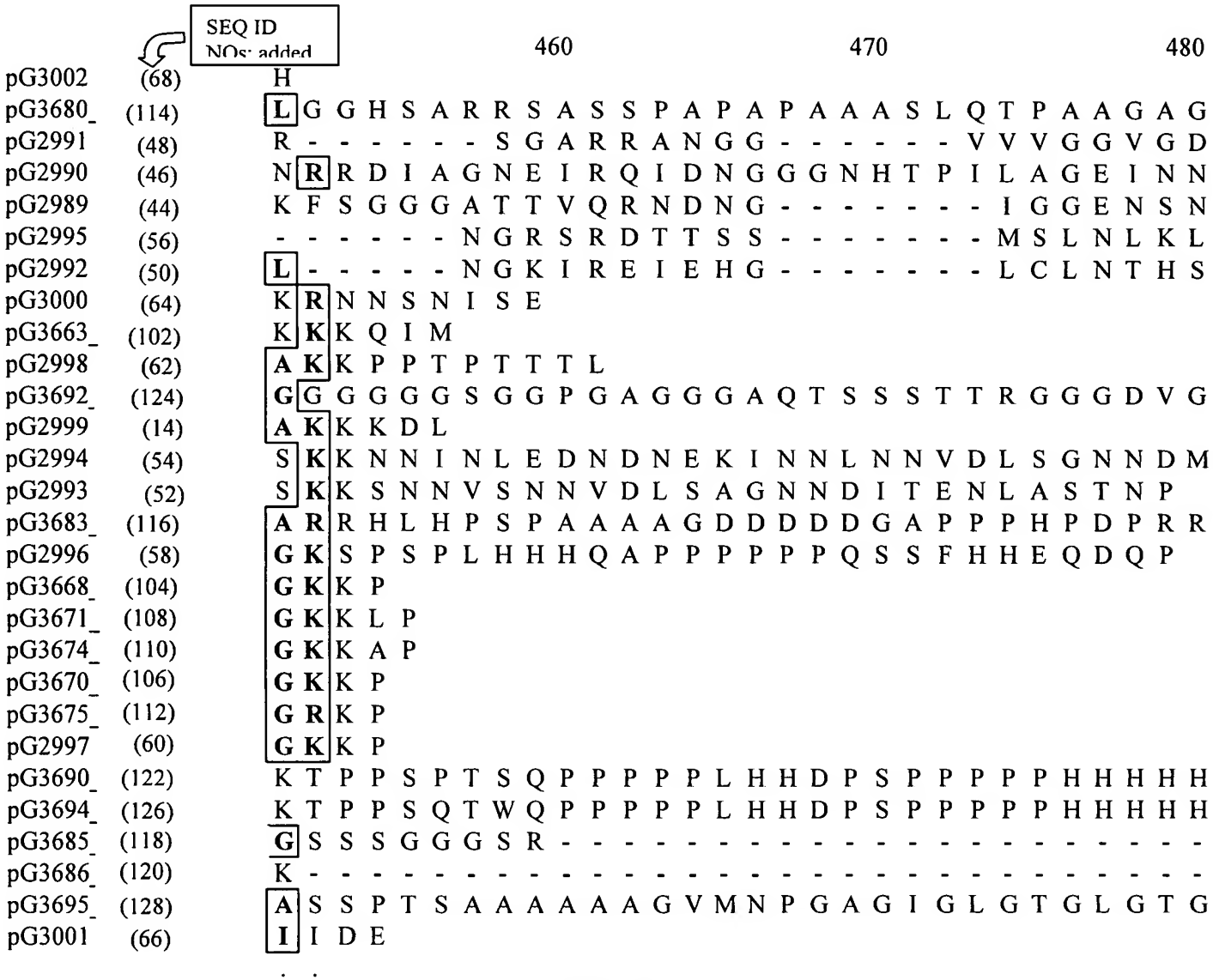
pG2991 (48) - D V V V K E F C R E I G V D K S V F K V W M H N N K I S G
pG2990 (46) - E D D V R D F C R Q I G V D K S V L K V W M H N N K N T F
pG2989 (44) - E D E V R D F C R E I G V D K G V L K V W M H N N K N S F
pG2995 (56) - E K W V R E F C S E V G I E R K V L K V W I H N N K Y F N
pG2992 (50) - E K S V R E F C N E V G I E R G V L K V W M H N N K Y S L
pG3000 (64) - E E E I D K F C R M V N L R R Q V F K V W M H N N K Q A M
pG3663 (102) - E E E V K Q F C S H V G V K R Q A F K V W M H N S K Q A M
pG2998 (62) - E E E L K R F C G E I G V K R Q V F K V W M H N N K - N N
pG3692 (124) G D D E V A R F C R E I G V N R Q V F K V W M H N H K A G G
pG2999 (14) - D D E V N R F C R E I K V K R Q V F K V W M H N N K - Q A
pG2994 (54) - D C V V Q R F C E E I G V K R R V L K V W M H N N K I H F
pG2993 (52) - E S V V Q Q L C Q E I G I R R R V L K V W M H N N K Q N L
pG3683 (116) - D A V V Q R F C Q E V G V K R R V L K V W M H N N K H T L
pG2996 (58) - D E V I Q R F C Q E T G V P R Q V L K V W L H N N K H T L
pG3668 (104) - E A A V Q Q F C N E T G V K R H V L K V W M H N N K H T I
pG3671 (108) - E A A V Q Q F C D E V G V K R H V L K V W M H N N K H T L
pG3674 (110) - E A A V Q Q F C E E V C V K R H V L K V W M H N N K H T L
pG3670 (106) - E A A V E Q F C A E T C V R R N V L K V W M H N N K N T L
pG3675 (112) - D A A V E Q F C A E T G V R R Q V L K I W M H N N K N S L
pG2997 (60) - D V A V E Q F C A E T G V R R Q V L K I W M H N N K N S L
pG3690 (122) - A A A V D A F C A Q V G V S R R V L K V W M H N N K H L A
pG3694 (126) - A A A V D A F C A Q V G V S R R V L K V W M H N N K L L A
pG3685 (118) - E A L V E Q F C A Q V G V R R Q V F K V W M H N N K S S I
pG3686 (120) - E A T V E H F C A Q V G V R R Q A L K V W M H N N K H S F
pG3695 (128) - D G A L D R F C V E I G V K R H V L K V W M H N H K N Q L
pG3001 (66) - Q E E V E E F C V E I G V N R K N F R I W M N N H K D K I
(690) E . V F C E . G V . R V L K V W M H N N K .

FIG. 8O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480
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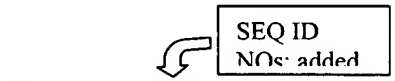
pG3680_ (114) L G G H S A R R S A S S P A P A P A A A S L Q T P A A G A G
pG2991 (48) R - - - - - - - S G A R R A N G G - - - - - - - V V V G G V G D
pG2990 (46) N R R D I A G N E I R Q I D N G G G N H T P I L A G E I N N
pG2989 (44) K F S G G G A T T V Q R N D N G - - - - - - - - I G G E N S N
pG2995 (56) - - - - - - - N G R S R D T T S S - - - - - - - - M S L N L K L
pG2992 (50) L - - - - - - N G K I R E I E H G - - - - - - - - L C L N T H S
pG3000 (64) K R N N S N I S E
pG3663_ (102) K K K Q I M
pG2998 (62) A K K P P T P T T T L
pG3692_ (124) G G G G G G S G G P G A G G G A Q T S S S T T R G G G D V G
pG2999 (14) A K K K D L
pG2994 (54) S K K N N I N L E D N D N E K I N N L N N V D L S G N N D M
pG2993 (52) S K K S N N V S N N V D L S A G N N D I T E N L A S T N P
pG3683_ (116) A R R H L H P S P A A A A G D D D D D D G A P P P H P D P R R
pG2996 (58) G K S P S P L H H H Q A P P P P P P Q S S F H H E Q D Q P
pG3668_ (104) G K K P
pG3671_ (108) G K K L P
pG3674_ (110) G K K A P
pG3670_ (106) G K K P
pG3675_ (112) G R K P
pG2997 (60) G K K P
pG3690_ (122) K T P P S P T S Q P P P P P L H H D P S P P P P P H H H H H
pG3694_ (126) K T P P S Q T W Q P P P P P L H H D P S P P P P P H H H H H
pG3685_ (118) G S S S G G G S R -
pG3686_ (120) K -
pG3695_ (128) A S S P T S A A A A A A G V M N P G A G I G L G T G L G T G
pG3001 (66) I I D E

FIG. 8P

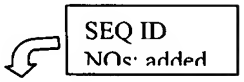


		490	500	510
pG3002	(68)			
pG3680_	(114)	A G A A A A P S F N P S R I T P P P P V L T S S P T A A T G		
pG2991	(48)	S R - - - Q S V V P T N - - - - - - - - - - - - - G S F S S T		
pG2990	(46)	H N N G H H G V G G G G E L H Q S V S S G G G G G G F D S D		
pG2989	(44)	D D - G V R G L A N D G - - - - - - - - - D G G G G R F E S D		
pG2995	(56)			
pG2992	(50)	N D - - G D G S S S S		
pG3000	(64)			
pG3663_	(102)			
pG2998	(62)			
pG3692_	(124)	V G L S P A M G G D G E D D E E V R G S E M C M		
pG2999	(14)			
pG2994	(54)	T K I V P		
pG2993	(52)			
pG3683_	(116)	R E L A A A A A P P P A P V T Q H I K K S V D N K S L I S S		
pG2996	(58)			
pG3668_	(104)			
pG3671_	(108)			
pG3674_	(110)			
pG3670_	(106)			
pG3675_	(112)			
pG2997	(60)			
pG3690_	(122)	H H H H H H P P Q H H Q Q Q Q Q Q H D A		
pG3694_	(126)	H H H H H H P P Q H H Q Q Q Q Q Q H D A		
pG3685_	(118)	- - - R Q P Q E Q Q S Q Q Q Q Q Q Q		
pG3686_	(120)	- - - - Q K Q Q Q E N R Q E Q Q Q		
pG3695_	(128)	I S G D G D G D D D D T D D S P P R A A V S S P S P S P I S		
pG3001	(66)			

FIG. 8Q

	SEQ ID NOs: added	520	530	540
pG3002	(68)			
pG3680_	(114)	F N I N G A A S S A P T V A T D Y T T D N A N G A S S P H S		
pG2991	(48)			
pG2990	(46)	S G G A N G G - N V N G S S S S		
pG2989	(44)	S G G A D G G G N V N A S S S S S		
pG2995	(56)			
pG2992	(50)			
pG3000	(64)			
pG3663_	(102)			
pG2998	(62)			
pG3692_	(124)			
pG2999	(14)			
pG2994	(54)			
pG2993	(52)			
pG3683_	(116)	L A A L H C I A L L L F H Q I D A		
pG2996	(58)			
pG3668_	(104)			
pG3671_	(108)			
pG3674_	(110)			
pG3670_	(106)			
pG3675_	(112)			
pG2997	(60)			
pG3690_	(122)			
pG3694_	(126)			
pG3685_	(118)			
pG3686_	(120)			
pG3695_	(128)	V X L D S Q T H C H W H T L A		
pG3001	(66)			

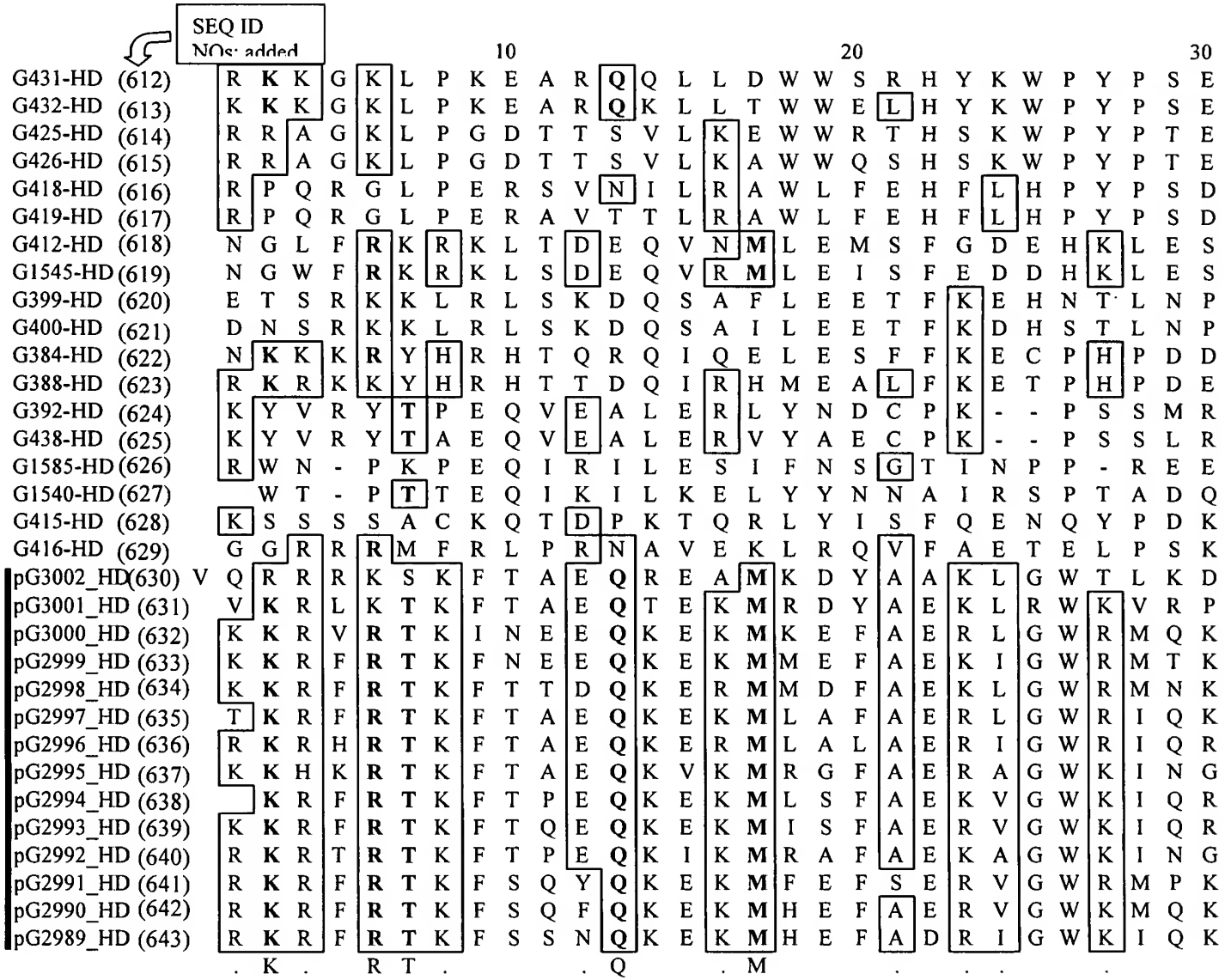
FIG. 8R



550 560 570

pG3002	(68)	
pG3680_	(114)	A
pG2991	(48)	
pG2990	(46)	
pG2989	(44)	
pG2995	(56)	
pG2992	(50)	
pG3000	(64)	
pG3663_	(102)	
pG2998	(62)	
pG3692_	(124)	
pG2999	(14)	
pG2994	(54)	
pG2993	(52)	
pG3683_	(116)	
pG2996	(58)	
pG3668_	(104)	
pG3671_	(108)	
pG3674_	(110)	
pG3670_	(106)	
pG3675_	(112)	
pG2997	(60)	
pG3690_	(122)	
pG3694_	(126)	
pG3685_	(118)	
pG3686_	(120)	
pG3695_	(128)	
pG3001	(66)	

FIG. 8S


SEQ ID
NOs: added
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30
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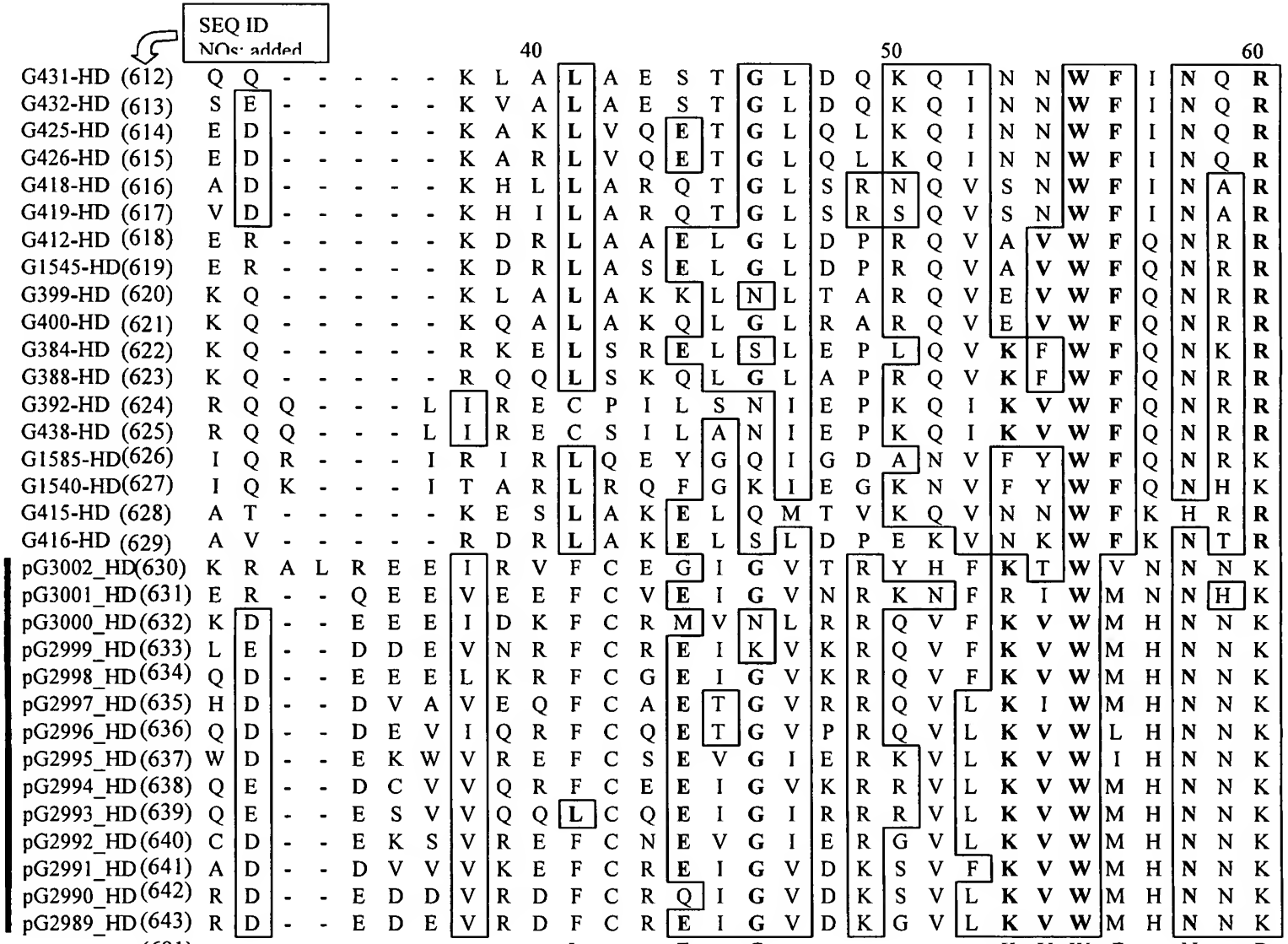
G432-HD (613) K K K G K L P K E A R Q K L L T W W E L H Y K W P Y P S E
G425-HD (614) R R A G K L P G D T T S V L K E W W R T H S K W P Y P T E
G426-HD (615) R R A G K L P G D T T S V L K A W W Q S H S K W P Y P T E
G418-HD (616) R P Q R G L P E R S V N I L R A W L F E H F L H P Y P S D
G419-HD (617) R P Q R G L P E R A V T T L R A W L F E H F L H P Y P S D
G412-HD (618) N G L F R K R K L T D E Q V N M L E M S F G D E H K L E S
G1545-HD (619) N G W F R K R K L S D E Q V R M L E I S F E D D H K L E S
G399-HD (620) E T S R K K L R L S K D Q S A F L E E T F K E H N T L N P
G400-HD (621) D N S R K K L R L S K D Q S A I L E E T F K D H S T L N P
G384-HD (622) N K K K R Y H R H T Q R Q I Q E L E S F F K E C P H P D D
G388-HD (623) R K R K K Y H R H T T D Q I R H M E A L F K E T P H P D E
G392-HD (624) K Y V R Y T P E Q V E A L E R L Y N D C P K - - P S S M R
G438-HD (625) K Y V R Y T A E Q V E A L E R V Y A E C P K - - P S S L R
G1585-HD (626) R W N - P K P E Q I R I L E S I F N S G T I N P P - R E E
G1540-HD (627) W T - P T T E Q I K I L K E L Y Y N N A I R S P T A D Q
G415-HD (628) K S S S S A C K Q T D P K T Q R L Y I S F Q E N Q Y P D K
G416-HD (629) G G R R R M F R L P R N A V E K L R Q V F A E T E L P S K
pG3002_HD (630) V Q R R R K S K F T A E Q R E A M K D Y A A K L G W T L K D
pG3001_HD (631) V K R L K T K F T A E Q T E K M R D Y A E K L R W K V R P
pG3000_HD (632) K K R V R T K I N E E Q K E K M K E F A E R L G W R M Q K
pG2999_HD (633) K K R F R T K F N E E Q K E K M M E F A E K I G W R M T K
pG2998_HD (634) K K R F R T K F T T D Q K E R M M D F A E K L G W R M N K
pG2997_HD (635) T K R F R T K F T A E Q K E K M L A F A E R L G W R I Q K
pG2996_HD (636) R K R H R T K F T A E Q K E R M L A L A E R I G W R I Q R
pG2995_HD (637) K K H K R T K F T A E Q K V K M R G F A E R A G W K I N G
pG2994_HD (638) K R F R T K F T P E Q K E K M L S F A E K V G W K I Q R
pG2993_HD (639) K K R F R T K F T Q E Q K E K M I S F A E R V G W K I Q R
pG2992_HD (640) R K R T R T K F T P E Q K I K M R A F A E K A G W K I N G
pG2991_HD (641) R K R F R T K F S Q Y Q K E K M F E F S E R V G W R M P K
pG2990_HD (642) R K R F R T K F S Q F Q K E K M H E F A E R V G W K M Q K
pG2989_HD (643) R K R F R T K F S S N Q K E K M H E F A D R I G W K I Q K
. K . R T . . Q . M . . .

FIG. 9A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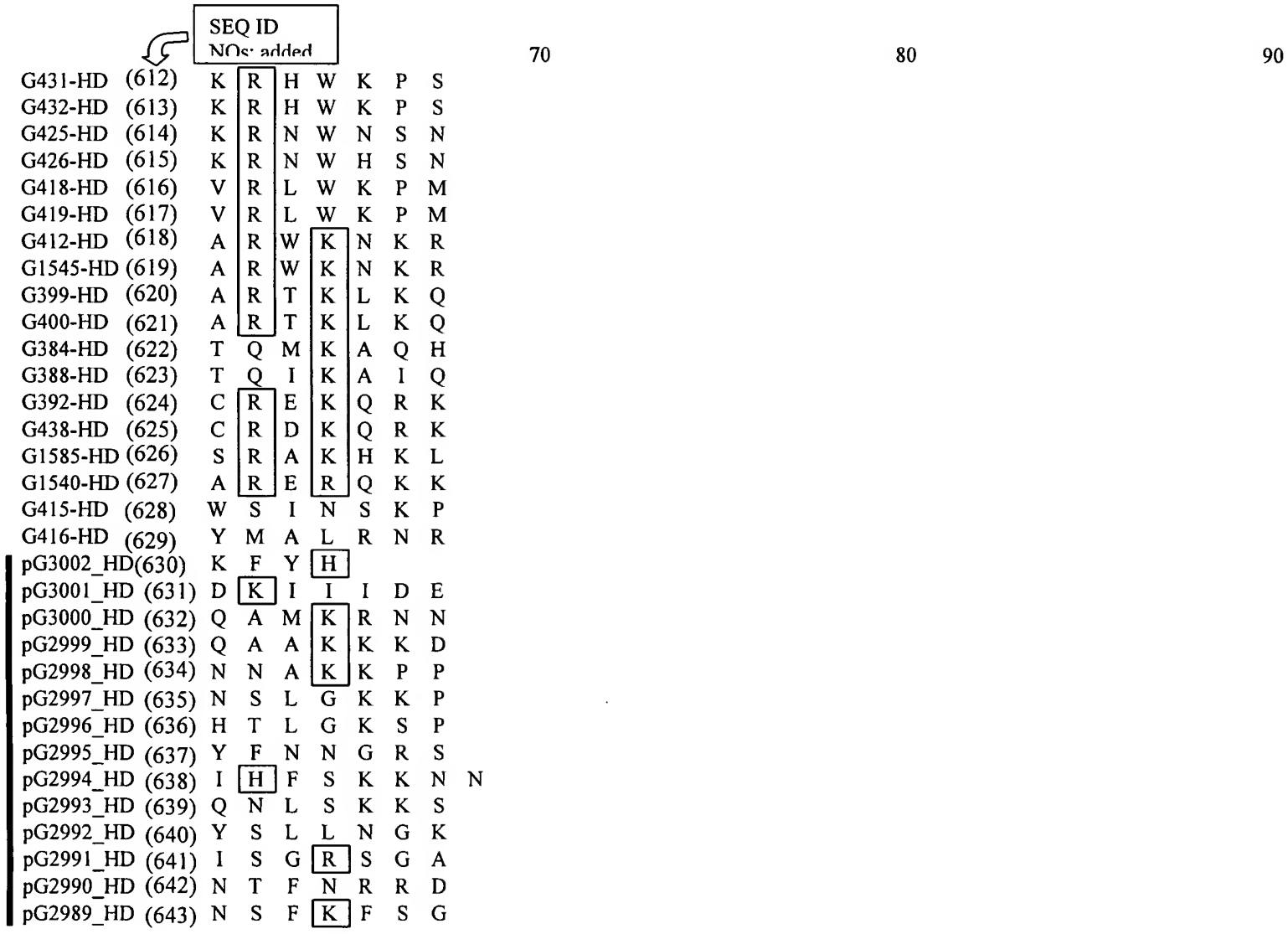
G432-HD (613) S E - - - - - K V A L A E S T G L D Q K Q I N N W F I N Q R
G425-HD (614) E D - - - - - K A K L V Q E T G L Q L K Q I N N W F I N Q R
G426-HD (615) E D - - - - - K A R L V Q E T G L Q L K Q I N N W F I N Q R
G418-HD (616) A D - - - - - K H L L A R Q T G L S R N Q V S N W F I N A R
G419-HD (617) V D - - - - - K H I L A R Q T G L S R S Q V S N W F I N A R
G412-HD (618) E R - - - - - K D R L A A E L G L D P R Q V A V W F Q N R R
G1545-HD(619) E R - - - - - K D R L A S E L G L D P R Q V A V W F Q N R R
G399-HD (620) K Q - - - - - K L A L A K K L N L T A R Q V E V W F Q N R R
G400-HD (621) K Q - - - - - K Q A L A K Q L G L R A R Q V E V W F Q N R R
G384-HD (622) K Q - - - - - R K E L S R E L S L E P L Q V K F W F Q N K R
G388-HD (623) K Q - - - - - R Q Q L S K Q L G L A P R Q V K F W F Q N R R
G392-HD (624) R Q Q - - - L I R E C P I L S N I E P K Q I K V W F Q N R R
G438-HD (625) R Q Q - - - L I R E C S I L A N I E P K Q I K V W F Q N R R
G1585-HD(626) I Q R - - - I R I R L Q E Y G Q I G D A N V F Y W F Q N R K
G1540-HD(627) I Q K - - - I T A R L R Q F G K I E G K N V F Y W F Q N H K
G415-HD (628) A T - - - - - K E S L A K E L Q M T V K Q V N N W F K H R R
G416-HD (629) A V - - - - - R D R L A K E L S L D P E K V N K W F K N T R
pG3002_HD(630) K R A L R E E I R V F C E G I G V T R Y H F K T W V N N N K
pG3001_HD(631) E R - - Q E E V E E F C V E I G V N R K N F R I W M N N H K
pG3000_HD(632) K D - - E E E I D K F C R M V N L R R Q V F K V W M H N N K
pG2999_HD(633) L E - - D D E V N R F C R E I K V K R Q V F K V W M H N N K
pG2998_HD(634) Q D - - E E E L K R F C G E I G V K R Q V F K V W M H N N K
pG2997_HD(635) H D - - D V A V E Q F C A E T G V R R Q V L K I W M H N N K
pG2996_HD(636) Q D - - D E V I Q R F C Q E T G V P R Q V L K V W L H N N K
pG2995_HD(637) W D - - E K W V R E F C S E V G I E R K V L K V W I H N N K
pG2994_HD(638) Q E - - D C V V Q R F C E E I G V K R R V L K V W M H N N K
pG2993_HD(639) Q E - - E S V V Q Q L C Q E I G I R R R V L K V W M H N N K
pG2992_HD(640) C D - - E K S V R E F C N E V G I E R G V L K V W M H N N K
pG2991_HD(641) A D - - D V V V K E F C R E I G V D K S V F K V W M H N N K
pG2990_HD(642) R D - - E D D V R D F C R Q I G V D K S V L K V W M H N N K
pG2989_HD(643) R D - - E D E V R D F C R E I G V D K G V L K V W M H N N K
(691) . . L E . G . . . . . K V W F N . R

FIG. 9B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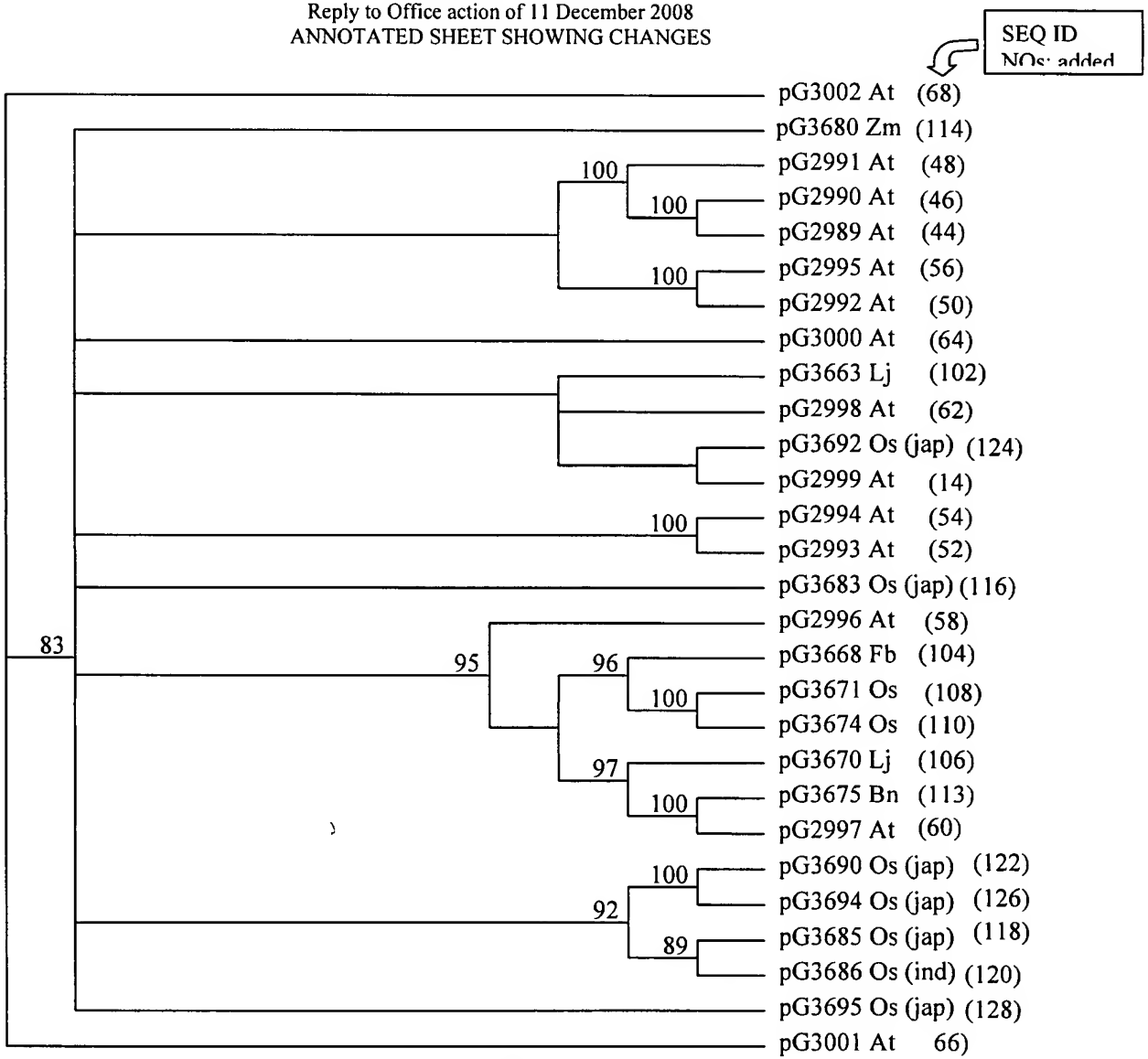
G425-HD (614) K R N W N S N
G426-HD (615) K R N W H S N
G418-HD (616) V R L W K P M
G419-HD (617) V R L W K P M
G412-HD (618) A R W K N K R
G1545-HD (619) A R W K N K R
G399-HD (620) A R T K L K Q
G400-HD (621) A R T K L K Q
G384-HD (622) T Q M K A Q H
G388-HD (623) T Q I K A I Q
G392-HD (624) C R E K Q R K
G438-HD (625) C R D K Q R K
G1585-HD (626) S R A K H K L
G1540-HD (627) A R E R Q K K
G415-HD (628) W S I N S K P
G416-HD (629) Y M A L R N R
pG3002_HD(630) K F Y H
pG3001_HD (631) D K I I I D E
pG3000_HD (632) Q A M K R N N
pG2999_HD (633) Q A A K K K D
pG2998_HD (634) N N A K K P P
pG2997_HD (635) N S L G K K P
pG2996_HD (636) H T L G K S P
pG2995_HD (637) Y F N N G R S
pG2994_HD (638) I H F S K K N N
pG2993_HD (639) Q N L S K K S
pG2992_HD (640) Y S L L N G K
pG2991_HD (641) I S G R S G A
pG2990_HD (642) N T F N R R D
pG2989_HD (643) N S F K F S G

FIG. 9C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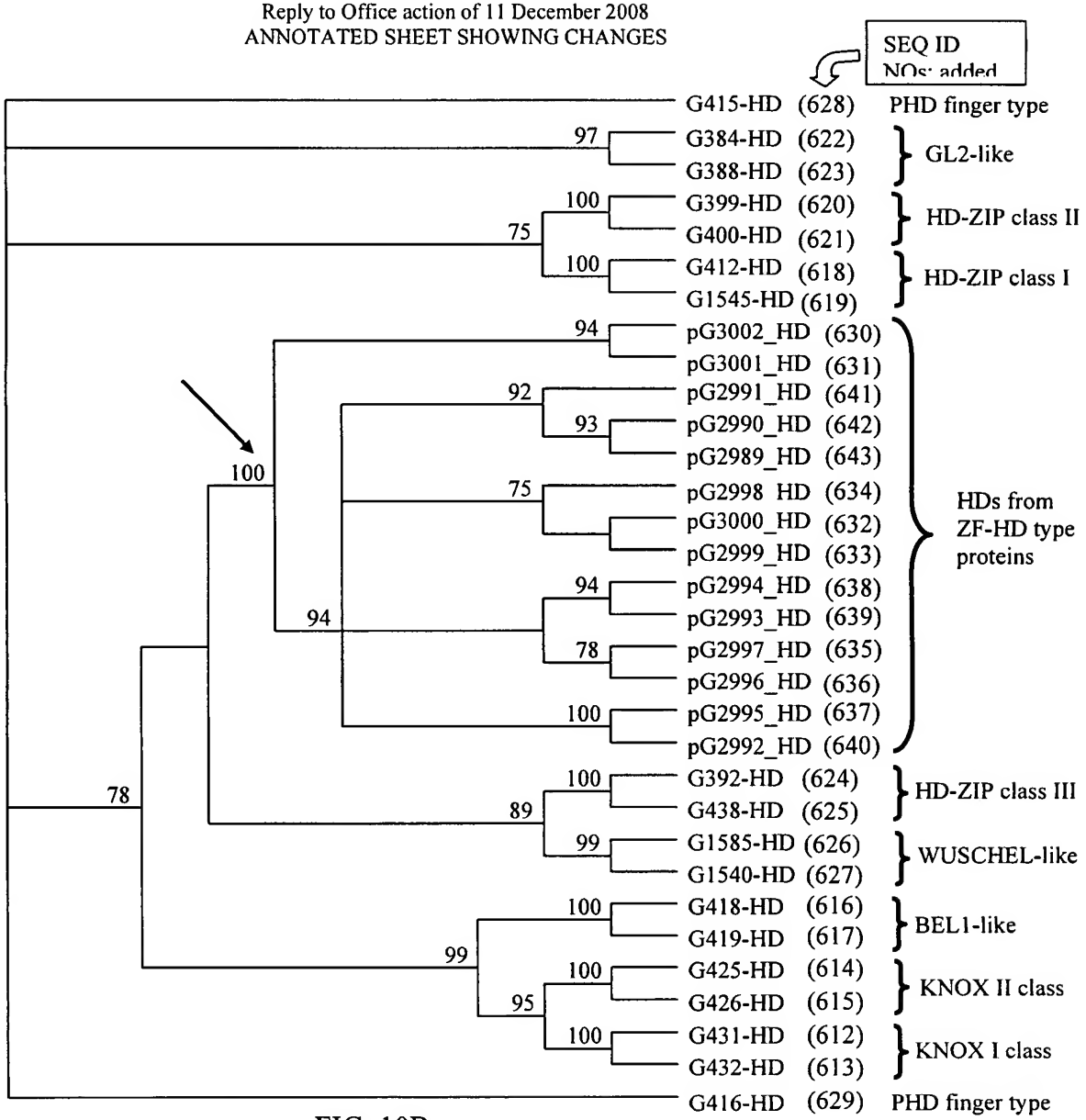
pG2995 At (56)
pG2992 At (50)
pG3000 At (64)
pG3663 Lj (102)
pG2998 At (62)
pG3692 Os (jap) (124)
pG2999 At (14)
pG2994 At (54)
pG2993 At (52)
pG3683 Os (jap) (116)
pG2996 At (58)
pG3668 Fb (104)
pG3671 Os (108)
pG3674 Os (110)
pG3670 Lj (106)
pG3675 Bn (113)
pG2997 At (60)
pG3690 Os (jap) (122)
pG3694 Os (jap) (126)
pG3685 Os (jap) (118)
pG3686 Os (ind) (120)
pG3695 Os (jap) (128)
pG3001 At 66)
100
100
100
100
83
95
96
100
97
100
100
92
89

FIG. 10A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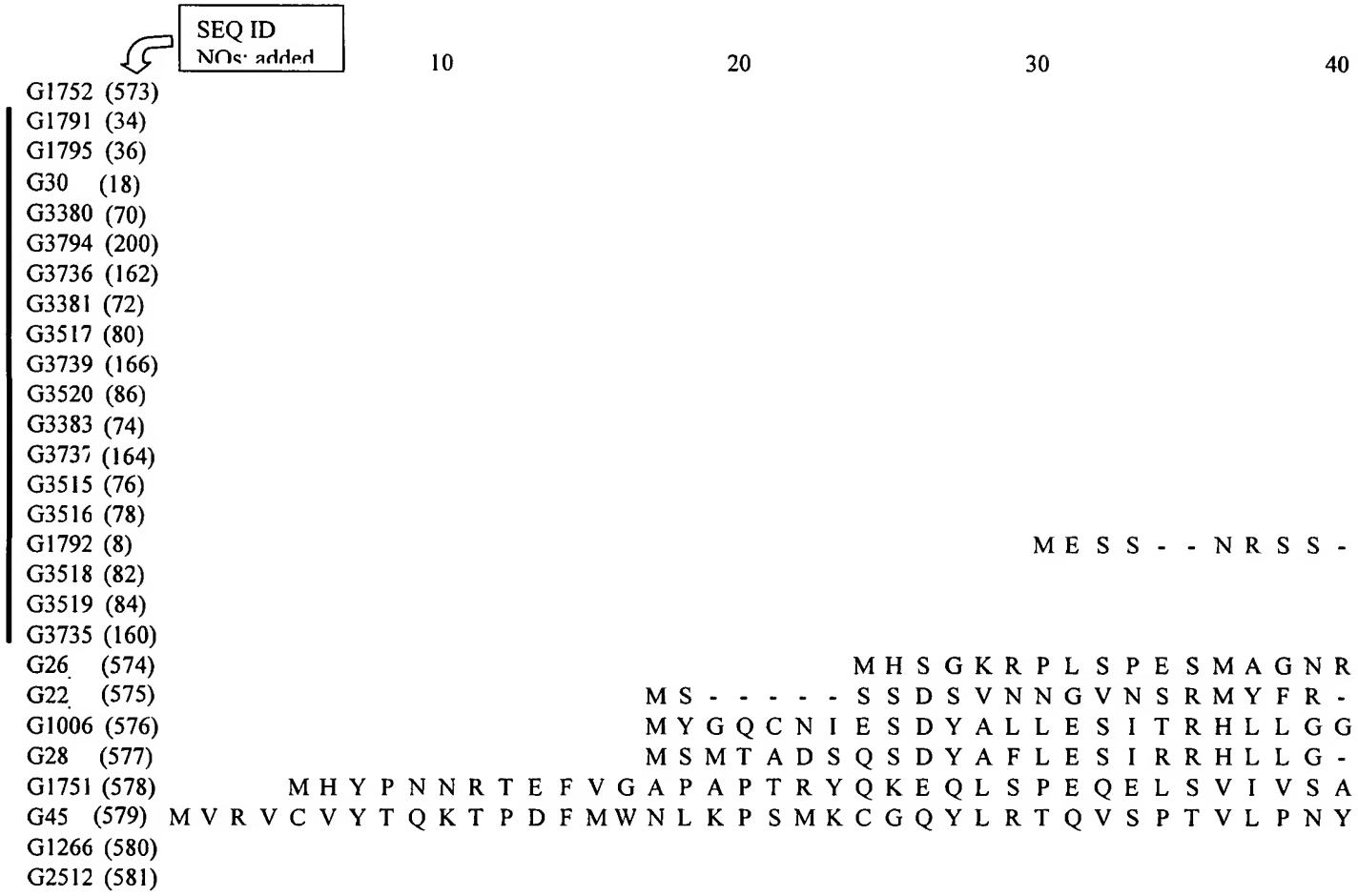
G388-HD (623)
GL2-like
100
G399-HD (620)
G400-HD (621)
HD-ZIP class II
75
100
G412-HD (618)
G1545-HD (619)
HD-ZIP class I
94
pG3002_HD (630)
pG3001_HD (631)
92
pG2991_HD (641)
93
pG2990_HD (642)
pG2989_HD (643)
100
75
pG2998 HD (634)
pG3000_HD (632)
pG2999_HD (633)
94
pG2994_HD (638)
94
pG2993_HD (639)
78
pG2997_HD (635)
pG2996_HD (636)
100
pG2995_HD (637)
pG2992_HD (640)
HDs from
ZF-HD type
proteins
78
100
G392-HD (624)
89
G438-HD (625)
HD-ZIP class III
99
G1585-HD (626)
G1540-HD (627)
WUSCHEL-like
100
G418-HD (616)
G419-HD (617)
BEL1-like
99
100
G425-HD (614)
95
G426-HD (615)
KNOX II class
100
G431-HD (612)
G432-HD (613)
KNOX I class
G416-HD (629)
PHD finger type

FIG. 10B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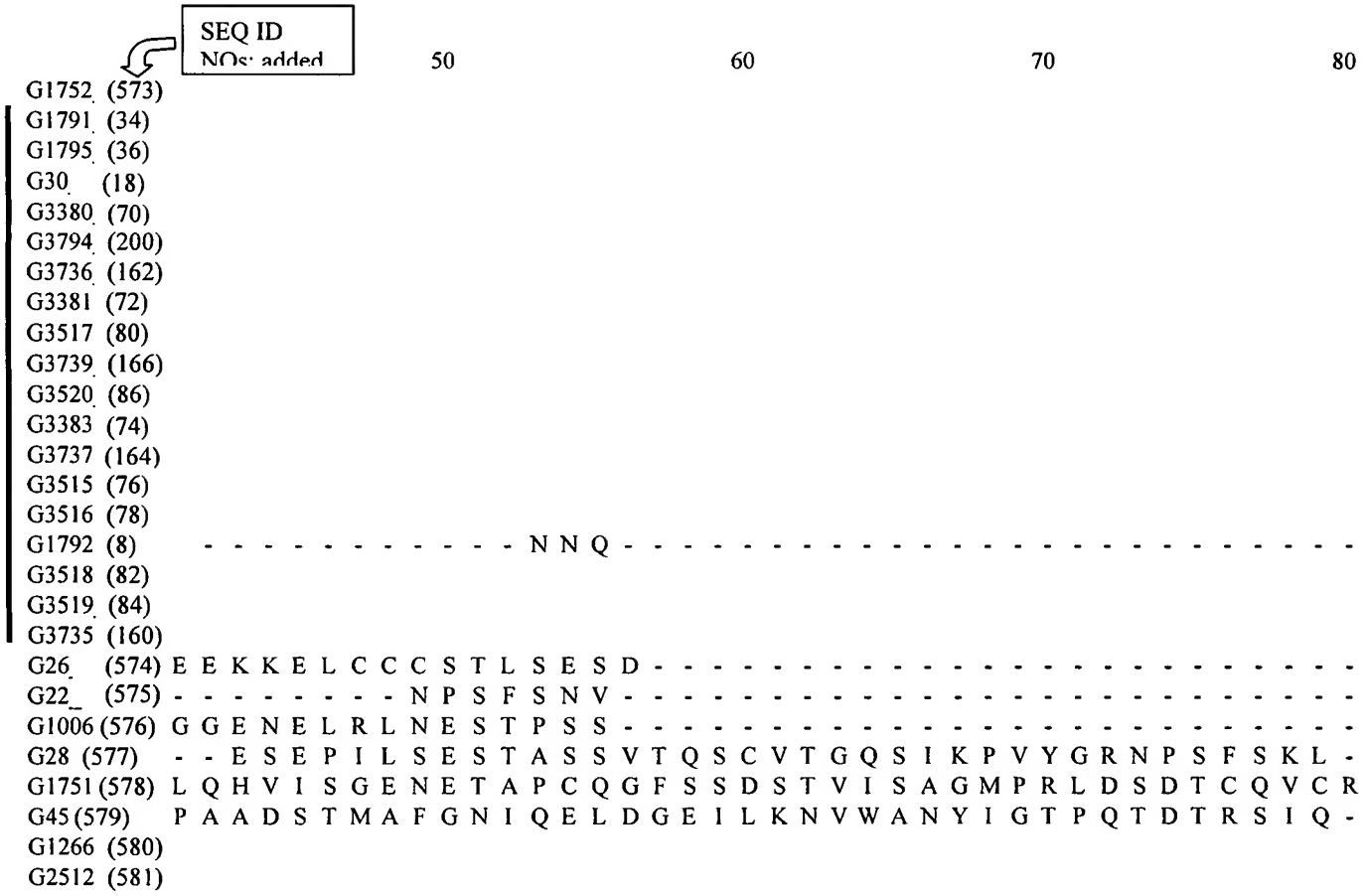
G30 (18)
G3380 (70)
G3794 (200)
G3736 (162)
G3381 (72)
G3517 (80)
G3739 (166)
G3520 (86)
G3383 (74)
G3737 (164)
G3515 (76)
G3516 (78)
G1792 (8) M E S S - - N R S S -
G3518 (82)
G3519 (84)
G3735 (160)
G26 (574) M H S G K R P L S P E S M A G N R
G22 (575) M S - - - - - S S D S V N N G V N S R M Y F R -
G1006 (576) M Y G Q C N I E S D Y A L L E S I T R H L L G G
G28 (577) M S M T A D S Q S D Y A F L E S I R R H L L G -
G1751 (578) M H Y P N N R T E F V G A P A P T R Y Q K E Q L S P E Q E L S V I V S A
G45 (579) M V R V C V Y T Q K T P D F M W N L K P S M K C G Q Y L R T Q V S P T V L P N Y
G1266 (580)
G2512 (581)

FIG. 12A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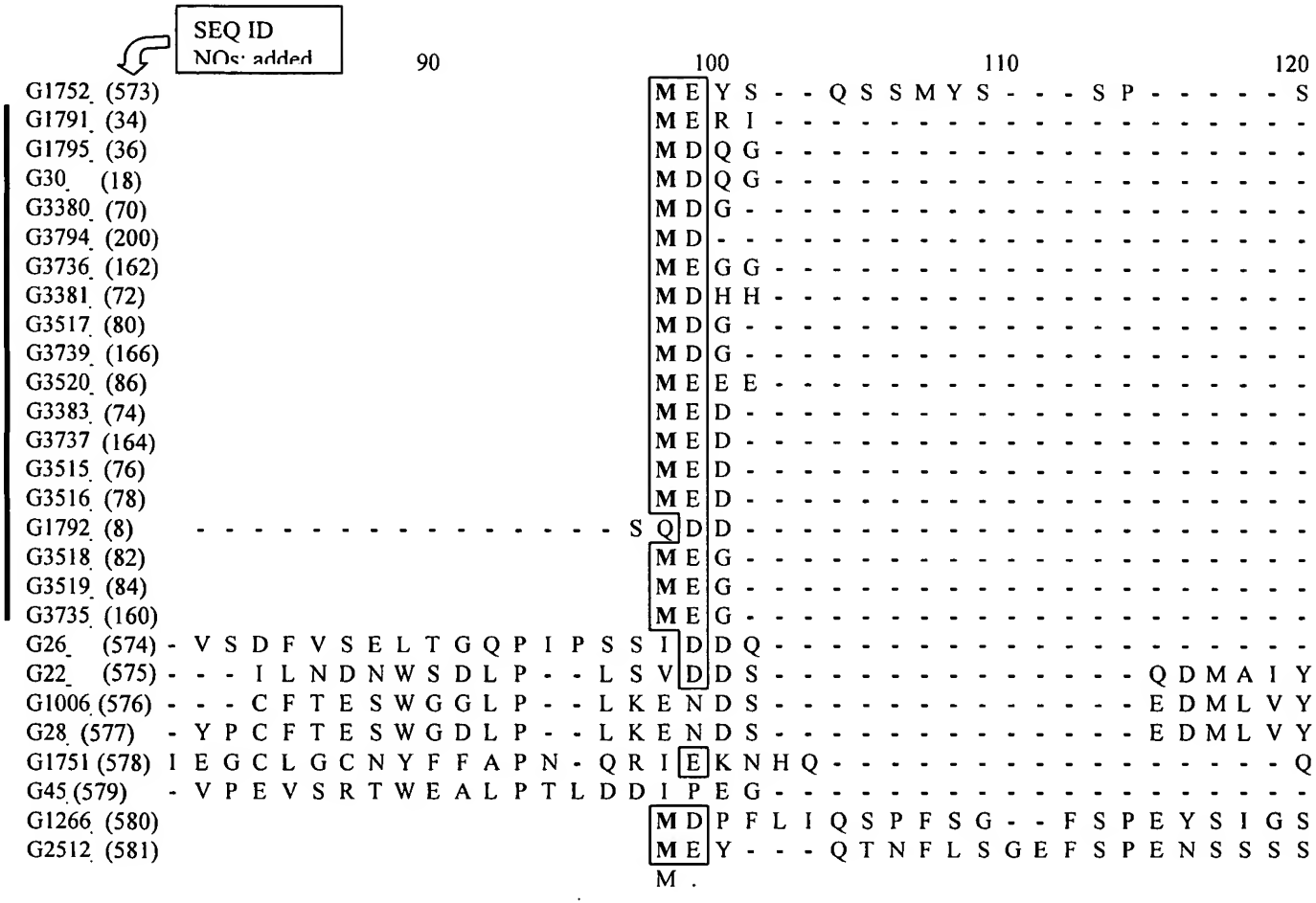
G3736 (162)
G3381 (72)
G3517 (80)
G3739 (166)
G3520 (86)
G3383 (74)
G3737 (164)
G3515 (76)
G3516 (78)
G1792 (8) - - - - - - - - - - - N N Q -
G3518 (82)
G3519 (84)
G3735 (160)
G26 (574) E E K K E L C C C S T L S E S D -
G22 (575) - - - - - - - - - N P S F S N V -
G1006 (576) G G E N E L R L N E S T P S S -
G28 (577) - - E S E P I L S E S T A S S V T Q S C V T G Q S I K P V Y G R N P S F S K L -
G1751 (578) L Q H V I S G E N E T A P C Q G F S S D S T V I S A G M P R L D S D T C Q V C R
G45 (579) P A A D S T M A F G N I Q E L D G E I L K N V W A N Y I G T P Q T D T R S I Q -
G1266 (580)
G2512 (581)

FIG. 12B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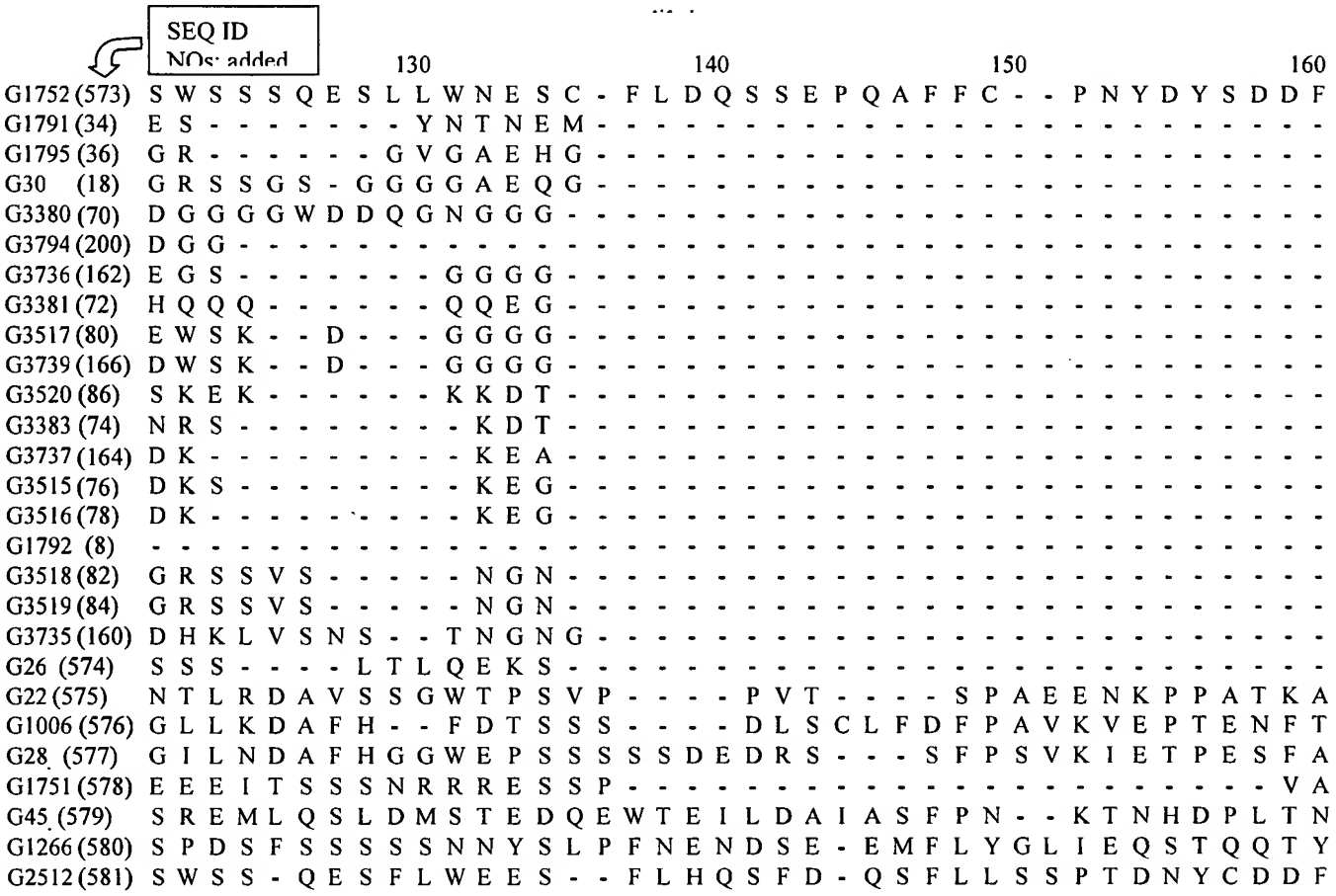
G1791 (34) M E R I - - - - - - - - - - - - - - - - - - -
G1795 (36) M D Q G - - - - - - - - - - - - - - - - - - -
G30 (18) M D Q G - - - - - - - - - - - - - - - - - - -
G3380 (70) M D G - - - - - - - - - - - - - - - - - - -
G3794 (200) M D - - - - - - - - - - - - - - - - - - -
G3736 (162) M E G G - - - - - - - - - - - - - - - - - -
G3381 (72) M D H H - - - - - - - - - - - - - - - - - -
G3517 (80) M D G - - - - - - - - - - - - - - - - - - -
G3739 (166) M D G - - - - - - - - - - - - - - - - - - -
G3520 (86) M E E E - - - - - - - - - - - - - - - - - -
G3383 (74) M E D - - - - - - - - - - - - - - - - - - -
G3737 (164) M E D - - - - - - - - - - - - - - - - - - -
G3515 (76) M E D - - - - - - - - - - - - - - - - - - -
G3516 (78) M E D - - - - - - - - - - - - - - - - - - -
G1792 (8) - - - - - - - - - - - - - - - - S Q D D - - - - - - - - - - - - - - - - -
G3518 (82) M E G - - - - - - - - - - - - - - - - - - -
G3519 (84) M E G - - - - - - - - - - - - - - - - - - -
G3735 (160) M E G - - - - - - - - - - - - - - - - - - -
G26 (574) - V S D F V S E L T G Q P I P S S I D D Q - - - - - - - - - - - - - - - - -
G22 (575) - - - I L N D N W S D L P - - L S V D D S - - - - - - - - - - - - Q D M A I Y
G1006 (576) - - - C F T E S W G G L P - - L K E N D S - - - - - - - - - - - - E D M L V Y
G28 (577) - Y P C F T E S W G D L P - - L K E N D S - - - - - - - - - - - - E D M L V Y
G1751 (578) I E G C L G C N Y F F A P N - Q R I E K N H Q - - - - - - - - - - - - - - - Q
G45 (579) - V P E V S R T W E A L P T L D D I P E G - - - - - - - - - - - - - - - - -
G1266 (580) M D P F L I Q S P F S G - - F S P E Y S I G S
G2512 (581) M E Y - - - Q T N F L S G E F S P E N S S S S
M .

FIG. 12C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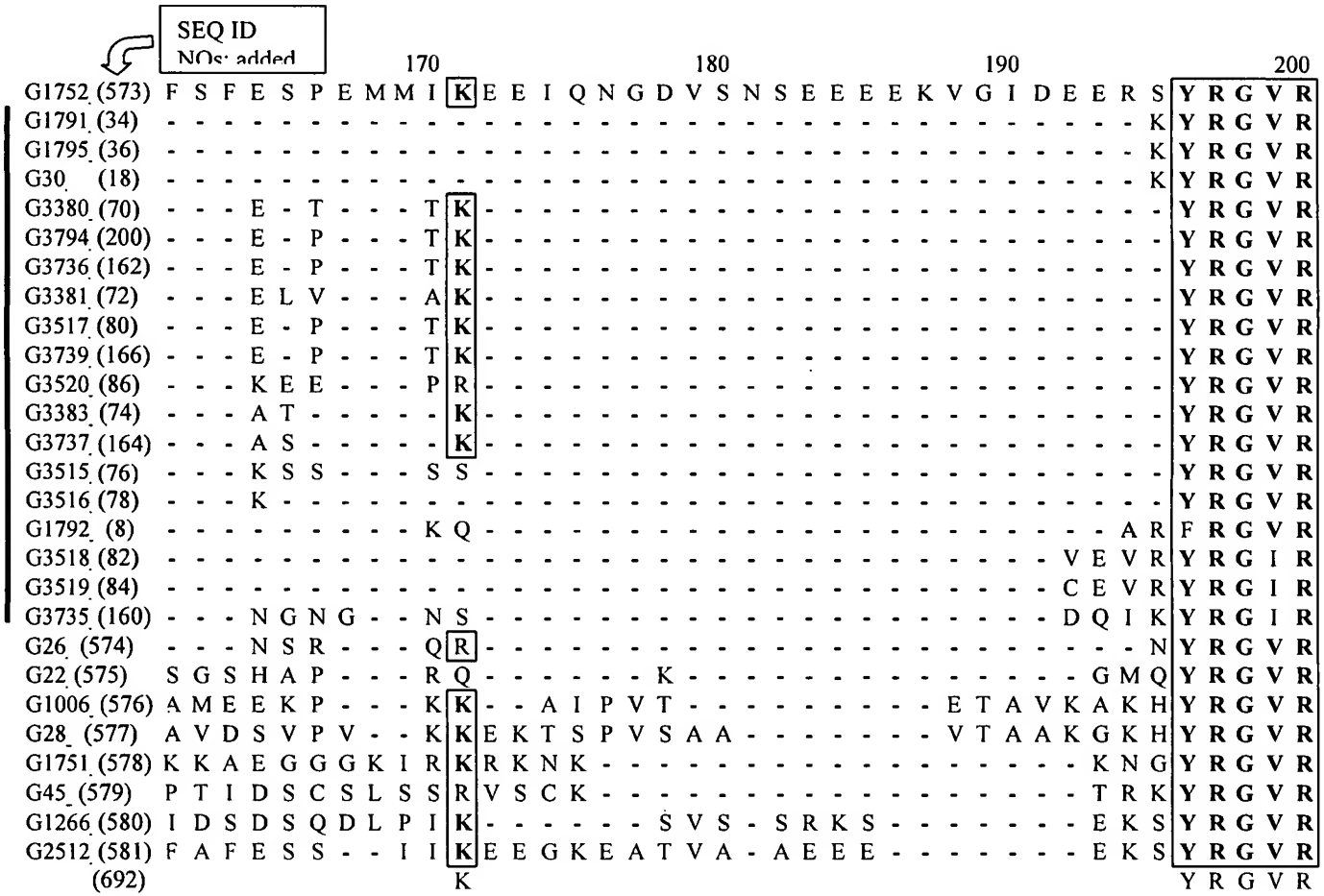
G1791 (34) E S - - - - - - - - Y N T N E M -
G1795 (36) G R - - - - - - - G V G A E H G -
G30 (18) G R S S G S - G G G G A E Q G -
G3380 (70) D G G G G W D D Q G N G G G -
G3794 (200) D G G -
G3736 (162) E G S - - - - - - - - G G G G -
G3381 (72) H Q Q Q - - - - - - - Q Q E G -
G3517 (80) E W S K - - D - - - G G G G -
G3739 (166) D W S K - - D - - - G G G G -
G3520 (86) S K E K - - - - - - - K K D T -
G3383 (74) N R S - - - - - - - - - K D T -
G3737 (164) D K - - - - - - - - - - K E A -
G3515 (76) D K S - - - - - - - - - K E G -
G3516 (78) D K - - - - - - - - - - K E G -
G1792 (8) -
G3518 (82) G R S S V S - - - - - N G N -
G3519 (84) G R S S V S - - - - - N G N -
G3735 (160) D H K L V S N S - - T N G N G -
G26 (574) S S S - - - - L T L Q E K S -
G22 (575) N T L R D A V S S G W T P S V P - - - - P V T - - - - S P A E E N K P P A T K A
G1006 (576) G L L K D A F H - - F D T S S S - - - - D L S C L F D F P A V K V E P T E N F T
G28 (577) G I L N D A F H G G W E P S S S S S S D E D R S - - - S F P S V K I E T P E S F A
G1751 (578) E E E I T S S S N R R R E S S P - V A
G45 (579) S R E M L Q S L D M S T E D Q E W T E I L D A I A S F P N - - K T N H D P L T N
G1266 (580) S P D S F S S S S S N N Y S L P F N E N D S E - E M F L Y G L I E Q S T Q Q T Y
G2512 (581) S W S S - Q E S F L W E E S - - F L H Q S F D - Q S F L L S S P T D N Y C D D F

FIG. 12D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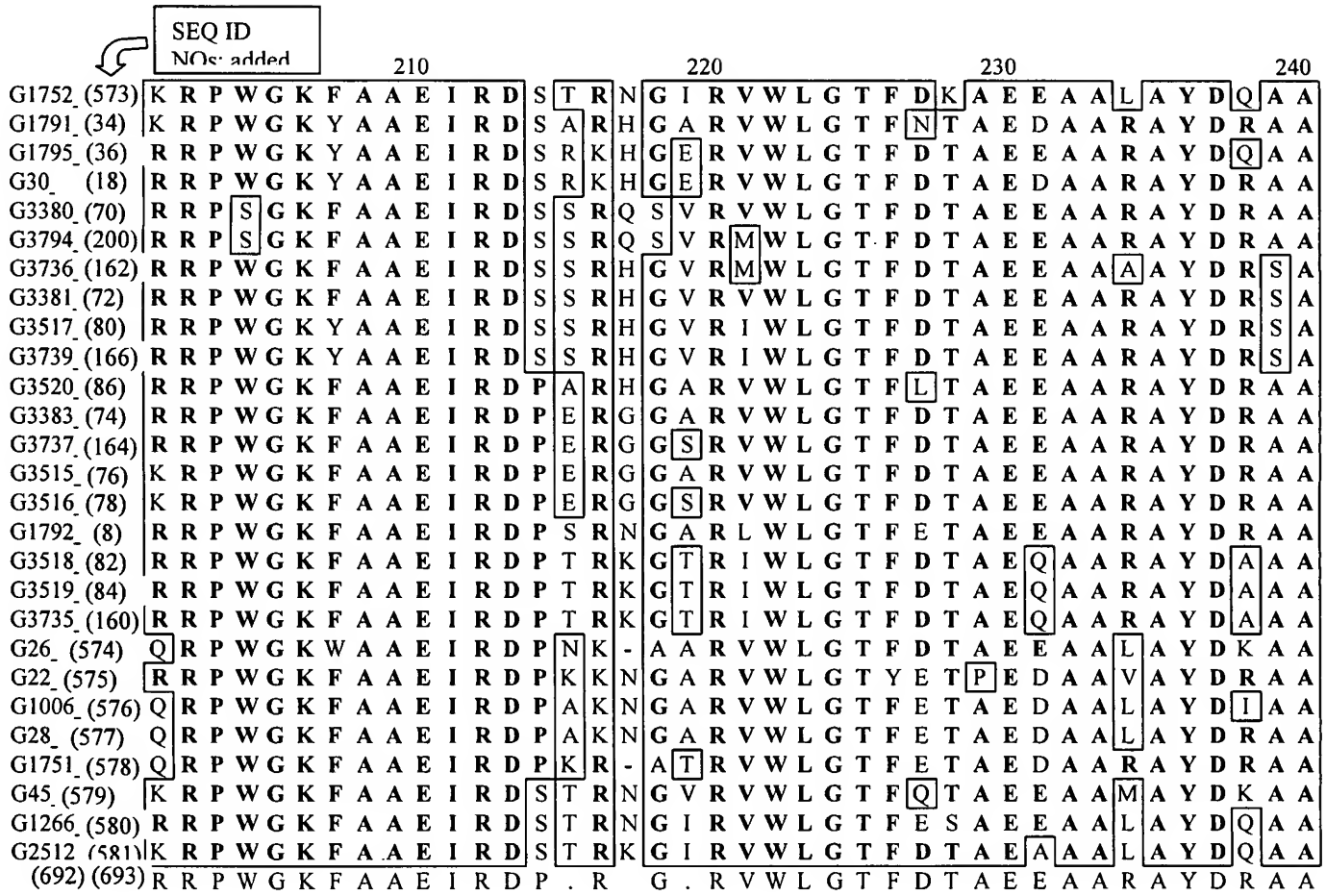
G1791 (34) K Y R G V R
G1795 (36) K Y R G V R
G30 (18) K Y R G V R
G3380 (70) T K Y R G V R
G3794 (200) T K Y R G V R
G3736 (162) T K Y R G V R
G3381 (72) A K Y R G V R
G3517 (80) T K Y R G V R
G3739 (166) T K Y R G V R
G3520 (86) P R Y R G V R
G3383 (74) K Y R G V R
G3737 (164) K Y R G V R
G3515 (76) S S Y R G V R
G3516 (78) Y R G V R
G1792 (8) K Q A R F R G V R
G3518 (82) V E V R Y R G I R
G3519 (84) C E V R Y R G I R
G3735 (160) N G N G N S D Q I K Y R G I R
G26 (574) N S R Q R N Y R G V R
G22 (575) S G S H A P R Q K G M Q Y R G V R
G1006 (576) A M E E K P K K A I P V T E T A V K A K H Y R G V R
G28 (577) A V D S V P V K K E K T S P V S A A V T A A K G K H Y R G V R
G1751 (578) K K A E G G G K I R K R K N K K N G Y R G V R
G45 (579) P T I D S C S L S S R V S C K T R K Y R G V R
G1266 (580) I D S D S Q D L P I K S V S S R K S E K S Y R G V R
G2512 (581) F A F E S S I I K E E G K E A T V A A E E E E K S Y R G V R
(692) K Y R G V R

FIG. 12E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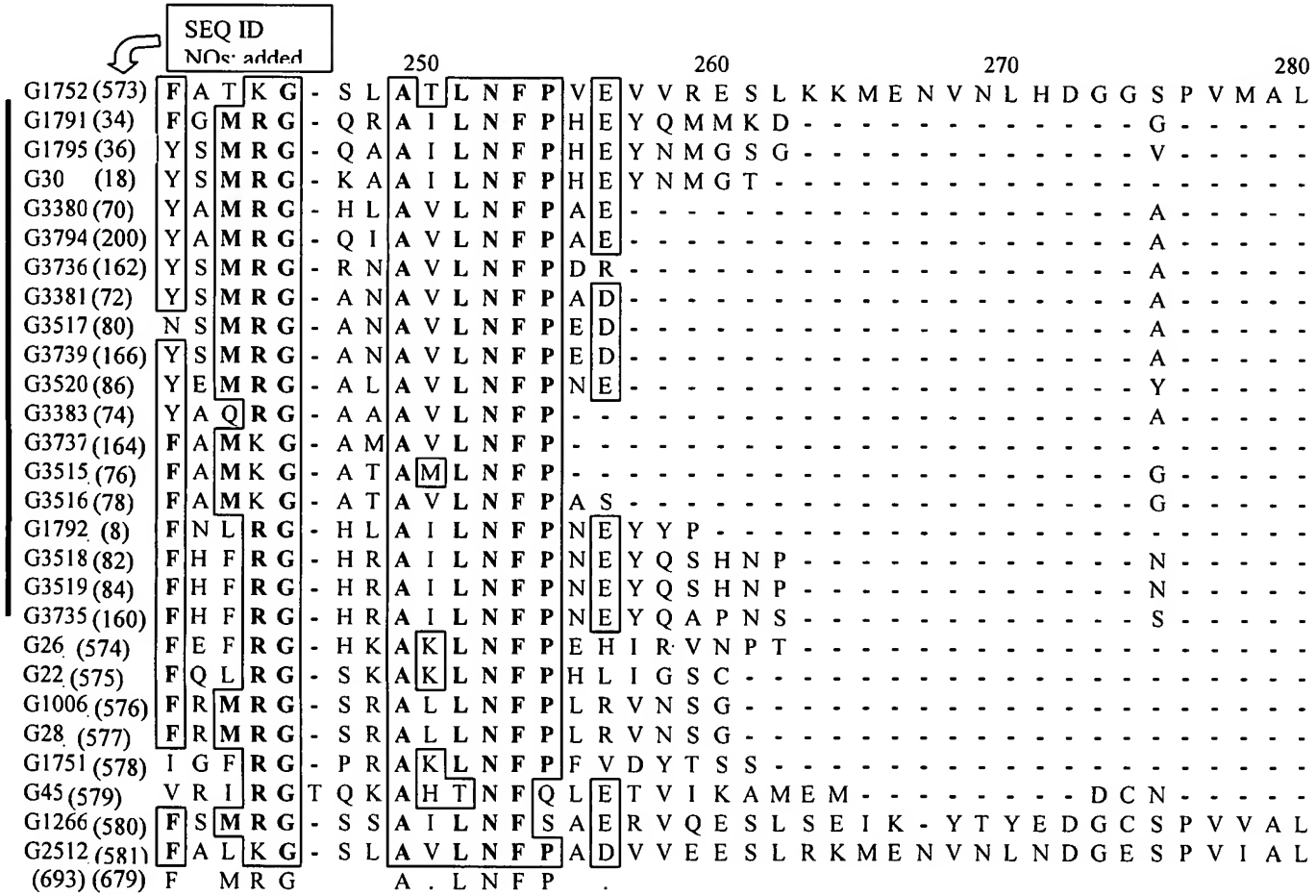
G1791 (34) K R P W G K Y A A E I R D S A R H G A R V W L G T F N T A E D A A R A Y D R A A
G1795 (36) R R P W G K Y A A E I R D S R K H G E R V W L G T F D T A E E A A R A Y D Q A A
G30 (18) R R P W G K Y A A E I R D S R K H G E R V W L G T F D T A E D A A R A Y D R A A
G3380 (70) R R P S G K F A A E I R D S S R Q S V R V W L G T F D T A E E A A R A Y D R A A
G3794 (200) R R P S G K F A A E I R D S S R Q S V R M W L G T F D T A E E A A R A Y D R A A
G3736 (162) R R P W G K F A A E I R D S S R H G V R M W L G T F D T A E E A A A A Y D R S A
G3381 (72) R R P W G K F A A E I R D S S R H G V R V W L G T F D T A E E A A R A Y D R S A
G3517 (80) R R P W G K Y A A E I R D S S R H G V R I W L G T F D T A E E A A R A Y D R S A
G3739 (166) R R P W G K Y A A E I R D S S R H G V R I W L G T F D T A E E A A R A Y D R S A
G3520 (86) R R P W G K F A A E I R D P A R H G A R V W L G T F L T A E E A A R A Y D R A A
G3383 (74) R R P W G K F A A E I R D P E R G G A R V W L G T F D T A E E A A R A Y D R A A
G3737 (164) R R P W G K F A A E I R D P E R G G S R V W L G T F D T A E E A A R A Y D R A A
G3515 (76) K R P W G K F A A E I R D P E R G G A R V W L G T F D T A E E A A R A Y D R A A
G3516 (78) K R P W G K F A A E I R D P E R G G S R V W L G T F D T A E E A A R A Y D R A A
G1792 (8) R R P W G K F A A E I R D P S R N G A R L W L G T F E T A E E A A R A Y D R A A
G3518 (82) R R P W G K F A A E I R D P T R K G T R I W L G T F D T A E Q A A R A Y D A A A
G3519 (84) R R P W G K F A A E I R D P T R K G T R I W L G T F D T A E Q A A R A Y D A A A
G3735 (160) R R P W G K F A A E I R D P T R K G T R I W L G T F D T A E Q A A R A Y D A A A
G26 (574) Q R P W G K W A A E I R D P N K - A A R V W L G T F D T A E E A A L A Y D K A A
G22 (575) R R P W G K F A A E I R D P K K N G A R V W L G T Y E T P E D A A V A Y D R A A
G1006 (576) Q R P W G K F A A E I R D P A K N G A R V W L G T F E T A E D A A L A Y D I A A
G28 (577) Q R P W G K F A A E I R D P A K N G A R V W L G T F E T A E D A A L A Y D R A A
G1751 (578) Q R P W G K F A A E I R D P K R - A T R V W L G T F E T A E D A A R A Y D R A A
G45 (579) K R P W G K F A A E I R D S T R N G V R V W L G T F Q T A E E A A M A Y D K A A
G1266 (580) R R P W G K F A A E I R D S T R N G I R V W L G T F E S A E E A A L A Y D Q A A
G2512 (581) K R P W G K F A A E I R D S T R K G I R V W L G T F D T A E A A A L A Y D Q A A
(692) (693) R R P W G K F A A E I R D P . R G . R V W L G T F D T A E E A A R A Y D R A A

FIG. 12F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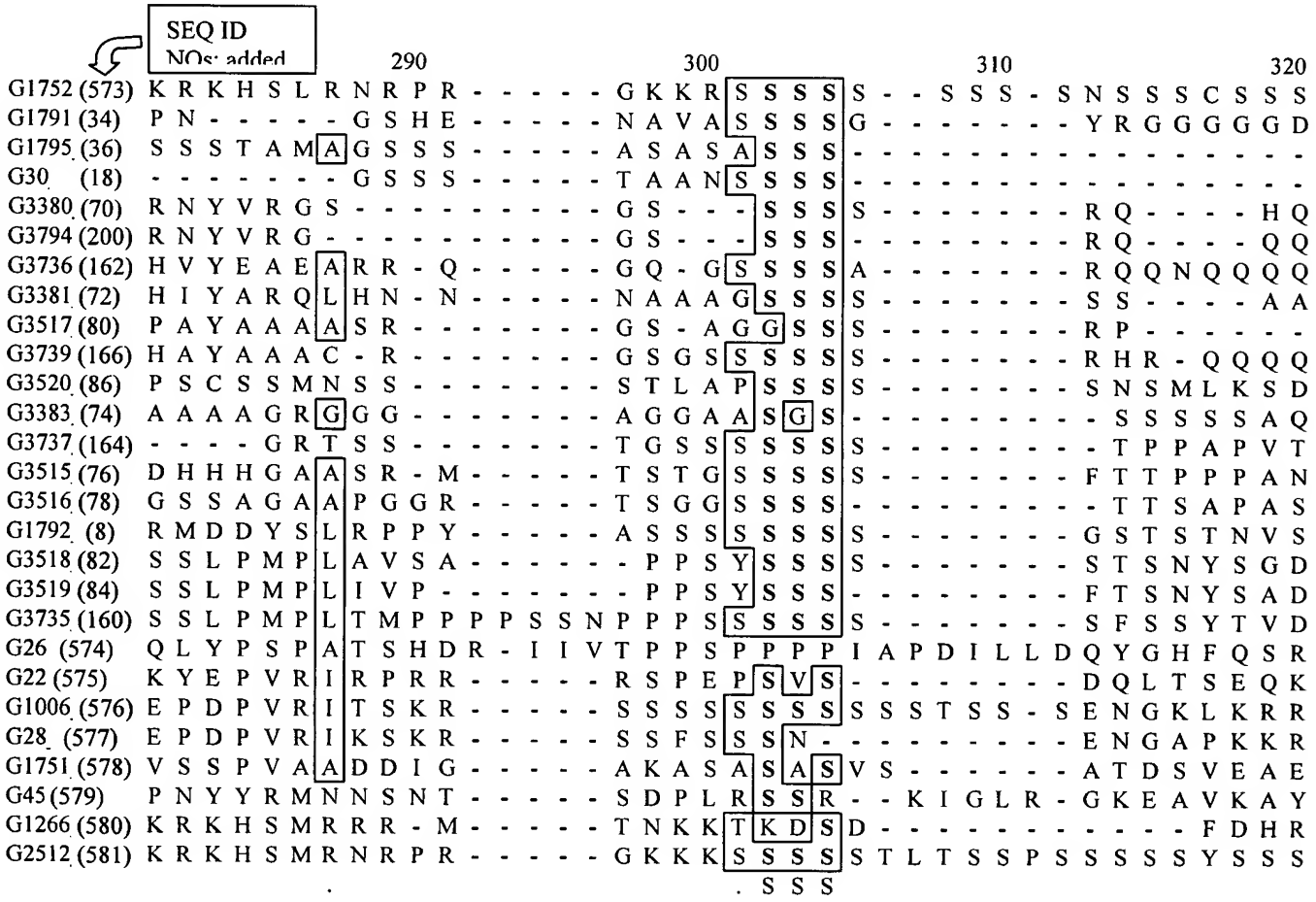
G1791 (34) F G M R G - Q R A I L N F P H E Y Q M M K D - - - - - - - - - - - - G - - - - -
G1795 (36) Y S M R G - Q A A I L N F P H E Y N M G S G - - - - - - - - - - - - V - - - - -
G30 (18) Y S M R G - K A A I L N F P H E Y N M G T - - - - - - - - - - - - - - - - - -
G3380 (70) Y A M R G - H L A V L N F P A E - - - - - - - - - - - - - - - - A - - - - -
G3794 (200) Y A M R G - Q I A V L N F P A E - - - - - - - - - - - - - - - - A - - - - -
G3736 (162) Y S M R G - R N A V L N F P D R - - - - - - - - - - - - - - - - A - - - - -
G3381 (72) Y S M R G - A N A V L N F P A D - - - - - - - - - - - - - - - - A - - - - -
G3517 (80) N S M R G - A N A V L N F P E D - - - - - - - - - - - - - - - - A - - - - -
G3739 (166) Y S M R G - A N A V L N F P E D - - - - - - - - - - - - - - - - A - - - - -
G3520 (86) Y E M R G - A L A V L N F P N E - - - - - - - - - - - - - - - - Y - - - - -
G3383 (74) Y A Q R G - A A A V L N F P - - - - - - - - - - - - - - - - - A - - - - -
G3737 (164) F A M K G - A M A V L N F P -
G3515 (76) F A M K G - A T A M L N F P - - - - - - - - - - - - - - - - - G - - - - -
G3516 (78) F A M K G - A T A V L N F P A S - - - - - - - - - - - - - - - - G - - - - -
G1792 (8) F N L R G - H L A I L N F P N E Y Y P - - - - - - - - - - - - - - - - - - -
G3518 (82) F H F R G - H R A I L N F P N E Y Q S H N P - - - - - - - - - - - - N - - - - -
G3519 (84) F H F R G - H R A I L N F P N E Y Q S H N P - - - - - - - - - - - - N - - - - -
G3735 (160) F H F R G - H R A I L N F P N E Y Q A P N S - - - - - - - - - - - - S - - - - -
G26 (574) F E F R G - H K A K L N F P E H I R V N P T - - - - - - - - - - - - - - - - -
G22 (575) F Q L R G - S K A K L N F P H L I G S C - - - - - - - - - - - - - - - - - -
G1006 (576) F R M R G - S R A L L N F P L R V N S G - - - - - - - - - - - - - - - - - -
G28 (577) F R M R G - S R A L L N F P L R V N S G - - - - - - - - - - - - - - - - - -
G1751 (578) I G F R G - P R A K L N F P F V D Y T S S - - - - - - - - - - - - - - - - -
G45 (579) V R I R G T Q K A H T N F Q L E T V I K A M E M - - - - - - - - D C N - - - - -
G1266 (580) F S M R G - S S A I L N F S A E R V Q E S L S E I K - Y T Y E D G C S P V V A L
G2512 (581) F A L K G - S L A V L N F P A D V V E E S L R K M E N V N L N D G E S P V I A L
(693) (679) F M R G A . L N F P .

FIG. 12G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G1791 (34) P N - - - - - G S H E - - - - - N A V A S S S S G - - - - - - - Y R G G G G G D
G1795 (36) S S S T A M A G S S S - - - - - A S A S A S S S - - - - - - - - - - - - - - -
G30 (18) - - - - - - - G S S S - - - - - T A A N S S S S - - - - - - - - - - - - - - -
G3380 (70) R N Y V R G S - - - - - - - - - - G S - - - S S S S - - - - - - - R Q - - - - H Q
G3794 (200) R N Y V R G - - - - - - - - - - G S - - - S S S - - - - - - - - R Q - - - - Q Q
G3736 (162) H V Y E A E A R R - Q - - - - - G Q - G S S S S A - - - - - - - R Q Q N Q Q Q Q
G3381 (72) H I Y A R Q L H N - N - - - - - N A A A G S S S S - - - - - - - S S - - - - A A
G3517 (80) P A Y A A A A S R - - - - - - - - G S - A G G S S S - - - - - - - R P - - - - - -
G3739 (166) H A Y A A A C - R - - - - - - - - G S G S S S S S - - - - - - - R H R - Q Q Q Q
G3520 (86) P S C S S M N S S - - - - - - - - S T L A P S S S S - - - - - - - S N S M L K S D
G3383 (74) A A A A G R G G G - - - - - - - - A G G A A S G S - - - - - - - - - S S S S S A Q
G3737 (164) - - - - G R T S S - - - - - - - - T G S S S S S S S - - - - - - - T P P A P V T
G3515 (76) D H H H G A A S R - M - - - - - T S T G S S S S S - - - - - - - F T T P P P A N
G3516 (78) G S S A G A A P G G R - - - - - T S G G S S S S - - - - - - - - - T T S A P A S
G1792 (8) R M D D Y S L R P P Y - - - - - A S S S S S S S S - - - - - - - G S T S T N V S
G3518 (82) S S L P M P L A V S A - - - - - - - P P S Y S S S S - - - - - - - S T S N Y S G D
G3519 (84) S S L P M P L I V P - - - - - - - - P P S Y S S S - - - - - - - - F T S N Y S A D
G3735 (160) S S L P M P L T M P P P P S S N P P P S S S S S S - - - - - - - S F S S Y T V D
G26 (574) Q L Y P S P A T S H D R - I I V T P P S P P P P I A P D I L L D Q Y G H F Q S R
G22 (575) K Y E P V R I R P R R - - - - - R S P E P S V S - - - - - - - - D Q L T S E Q K
G1006 (576) E P D P V R I T S K R - - - - - S S S S S S S S S S S S T S S - S E N G K L K R R
G28 (577) E P D P V R I K S K R - - - - - S S F S S S N - - - - - - - - - E N G A P K K R
G1751 (578) V S S P V A A D D I G - - - - - A K A S A S A S V S - - - - - - - A T D S V E A E
G45 (579) P N Y Y R M N N S N T - - - - - S D P L R S S R - - K I G L R - G K E A V K A Y
G1266 (580) K R K H S M R R R - M - - - - - T N K K T K D S D - - - - - - - - - - - F D H R
G2512 (581) K R K H S M R N R P R - - - - - G K K K S S S S S T L T S S P S S S S S Y S S S
S S S

FIG. 12H

SEQ ID NOs: added

```
                        330                 340                 350                 360
G1752_(573)  S S T S S - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G1791_(34)   D - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G1795_(36)   - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G30_  (18)   - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3380_(70)   Q - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3794_(200)  Q G G G G - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3736_(162)  Q G Q - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3381_(72)   A A - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3517_(80)   A G - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3739_(166)  Q G - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3520_(86)   H - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3383_(74)   R - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3737_(164)  T - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3515_(76)   S S A A - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3516_(78)   R - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G1792_(8)    R - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3518_(82)   D N N N H - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3519_(84)   D N N - H - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G3735_(160)  D - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G26_(574)    S S D - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G22_(575)    R E S - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G1006_(576)  R - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G28_(577)    R T V - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G1751_(578)  Q W N - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G45_(579)    D E V V D G M V E N H C A L S Y C S T K E H S E T R G L R G S E E T W F D L R K
G1266_(580)  S - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
G2512_(581)  S S S S S - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

FIG. 12I

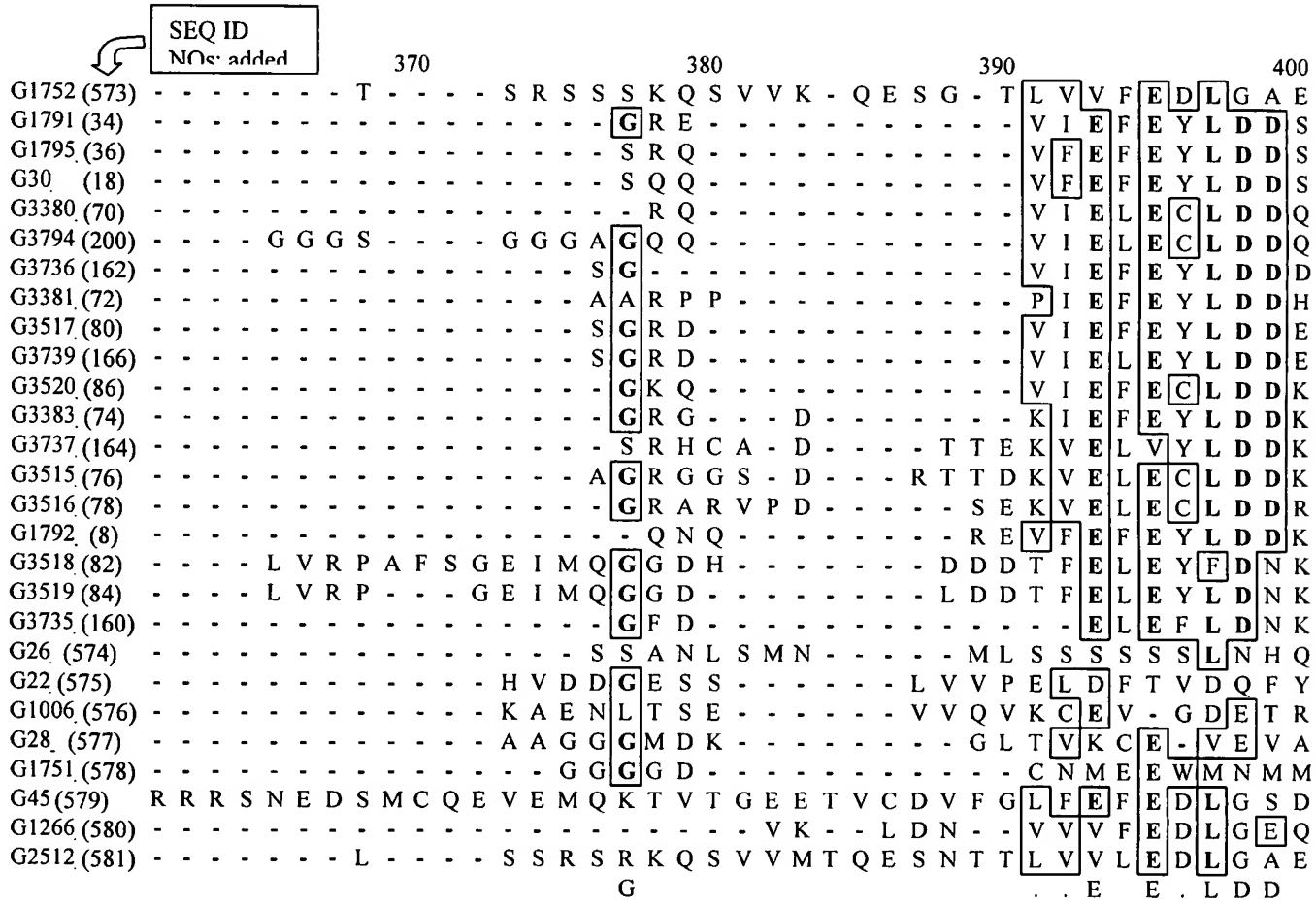
SEQ ID NOs: added
370
380
390
400
G1752 (573)
G1791 (34)
G1795 (36)
G30 (18)
G3380 (70)
G3794 (200)
G3736 (162)
G3381 (72)
G3517 (80)
G3739 (166)
G3520 (86)
G3383 (74)
G3737 (164)
G3515 (76)
G3516 (78)
G1792 (8)
G3518 (82)
G3519 (84)
G3735 (160)
G26 (574)
G22 (575)
G1006 (576)
G28 (577)
G1751 (578)
G45 (579)
G1266 (580)
G2512 (581)

FIG. 12J

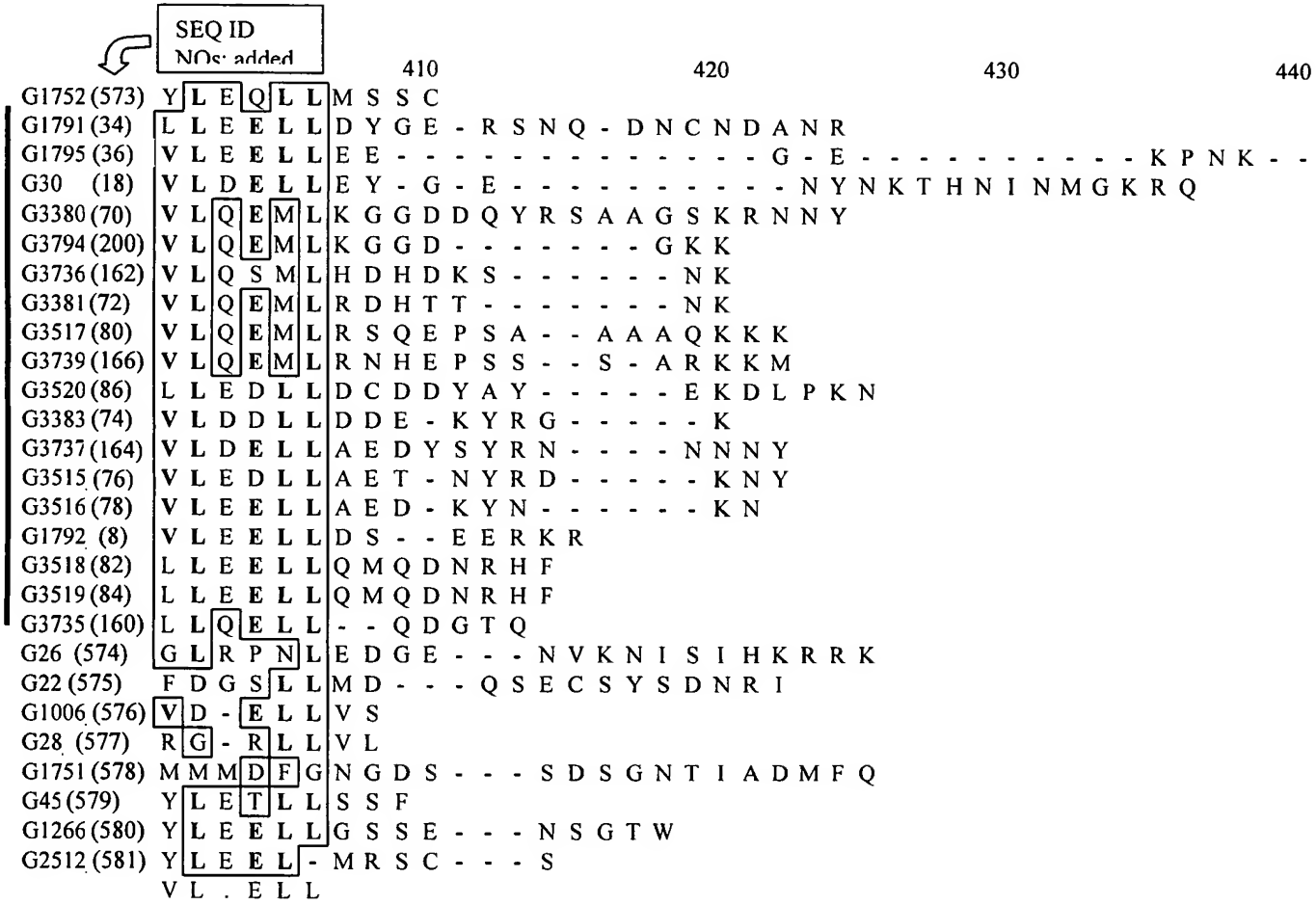
SEQ ID NOs: added
410
420
430
440
G1752 (573) Y L E Q L L M S S C
G1791 (34) L L E E L L D Y G E - R S N Q - D N C N D A N R
G1795 (36) V L E E L L E E - - - - - - - - - - - - - G - E - - - - - - - - - - - K P N K - -
G30 (18) V L D E L L E Y - G - E - - - - - - - - - - N Y N K T H N I N M G K R Q
G3380 (70) V L Q E M L K G G D D Q Y R S A A G S K R N N Y
G3794 (200) V L Q E M L K G G D - - - - - - - G K K
G3736 (162) V L Q S M L H D H D K S - - - - - - N K
G3381 (72) V L Q E M L R D H T T - - - - - - - N K
G3517 (80) V L Q E M L R S Q E P S A - - A A A Q K K K
G3739 (166) V L Q E M L R N H E P S S - - S - A R K K M
G3520 (86) L L E D L L D C D D Y A Y - - - - - E K D L P K N
G3383 (74) V L D D L L D D E - K Y R G - - - - - K
G3737 (164) V L D E L L A E D Y S Y R N - - - - N N N Y
G3515 (76) V L E D L L A E T - N Y R D - - - - - K N Y
G3516 (78) V L E E L L A E D - K Y N - - - - - - K N
G1792 (8) V L E E L L D S - - E E R K R
G3518 (82) L L E E L L Q M Q D N R H F
G3519 (84) L L E E L L Q M Q D N R H F
G3735 (160) L L Q E L L - - Q D G T Q
G26 (574) G L R P N L E D G E - - - N V K N I S I H K R R K
G22 (575) F D G S L L M D - - - Q S E C S Y S D N R I
G1006 (576) V D - E L L V S
G28 (577) R G - R L L V L
G1751 (578) M M M D F G N G D S - - - S D S G N T I A D M F Q
G45 (579) Y L E T L L S S F
G1266 (580) Y L E E L L G S S E - - - N S G T W
G2512 (581) Y L E E L - M R S C - - - S
V L . E L L

FIG. 12K


SEQ ID NOs: added
450
460
470
480
G1752 (573)
G1791 (34)
G1795 (36) - - - - G K K K
G30 (18)
G3380 (70)
G3794 (200)
G3736 (162)
G3381 (72)
G3517 (80)
G3739 (166)
G3520 (86)
G3383 (74)
G3737 (164)
G3515 (76)
G3516 (78)
G1792 (8)
G3518 (82)
G3519 (84)
G3735 (160)
G26 (574)
G22 (575)
G1006 (576)
G28 (577)
G1751 (578)
G45 (579)
G1266 (580)
G2512 (581)

FIG. 12L

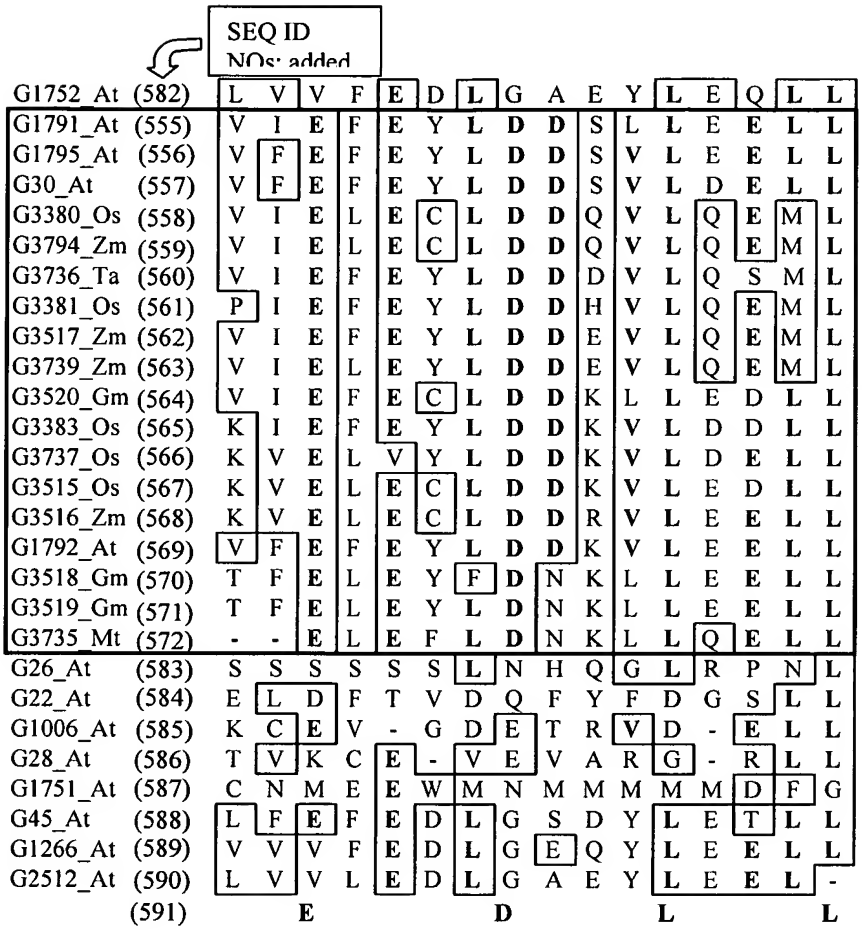
SEQ ID NOs: added
G1752_At (582) L V V F E D L G A E Y L E Q L L
G1791_At (555) V I E F E Y L D D S L L E E L L
G1795_At (556) V F E F E Y L D D S V L E E L L
G30_At (557) V F E F E Y L D D S V L D E L L
G3380_Os (558) V I E L E C L D D Q V L Q E M L
G3794_Zm (559) V I E L E C L D D Q V L Q E M L
G3736_Ta (560) V I E F E Y L D D D V L Q S M L
G3381_Os (561) P I E F E Y L D D H V L Q E M L
G3517_Zm (562) V I E F E Y L D D E V L Q E M L
G3739_Zm (563) V I E L E Y L D D E V L Q E M L
G3520_Gm (564) V I E F E C L D D K L L E D L L
G3383_Os (565) K I E F E Y L D D K V L D D L L
G3737_Os (566) K V E L V Y L D D K V L D E L L
G3515_Os (567) K V E L E C L D D K V L E D L L
G3516_Zm (568) K V E L E C L D D R V L E E L L
G1792_At (569) V F E F E Y L D D K V L E E L L
G3518_Gm (570) T F E L E Y F D N K L L E E L L
G3519_Gm (571) T F E L E Y L D N K L L E E L L
G3735_Mt (572) - - E L E F L D N K L L Q E L L
G26_At (583) S S S S S S L N H Q G L R P N L
G22_At (584) E L D F T V D Q F Y F D G S L L
G1006_At (585) K C E V - G D E T R V D - E L L
G28_At (586) T V K C E - V E V A R G - R L L
G1751_At (587) C N M E E W M N M M M M M D F G
G45_At (588) L F E F E D L G S D Y L E T L L
G1266_At (589) V V V F E D L G E Q Y L E E L L
G2512_At (590) L V V L E D L G A E Y L E E L -
(591) E D L L
G1792 clade

FIG. 13

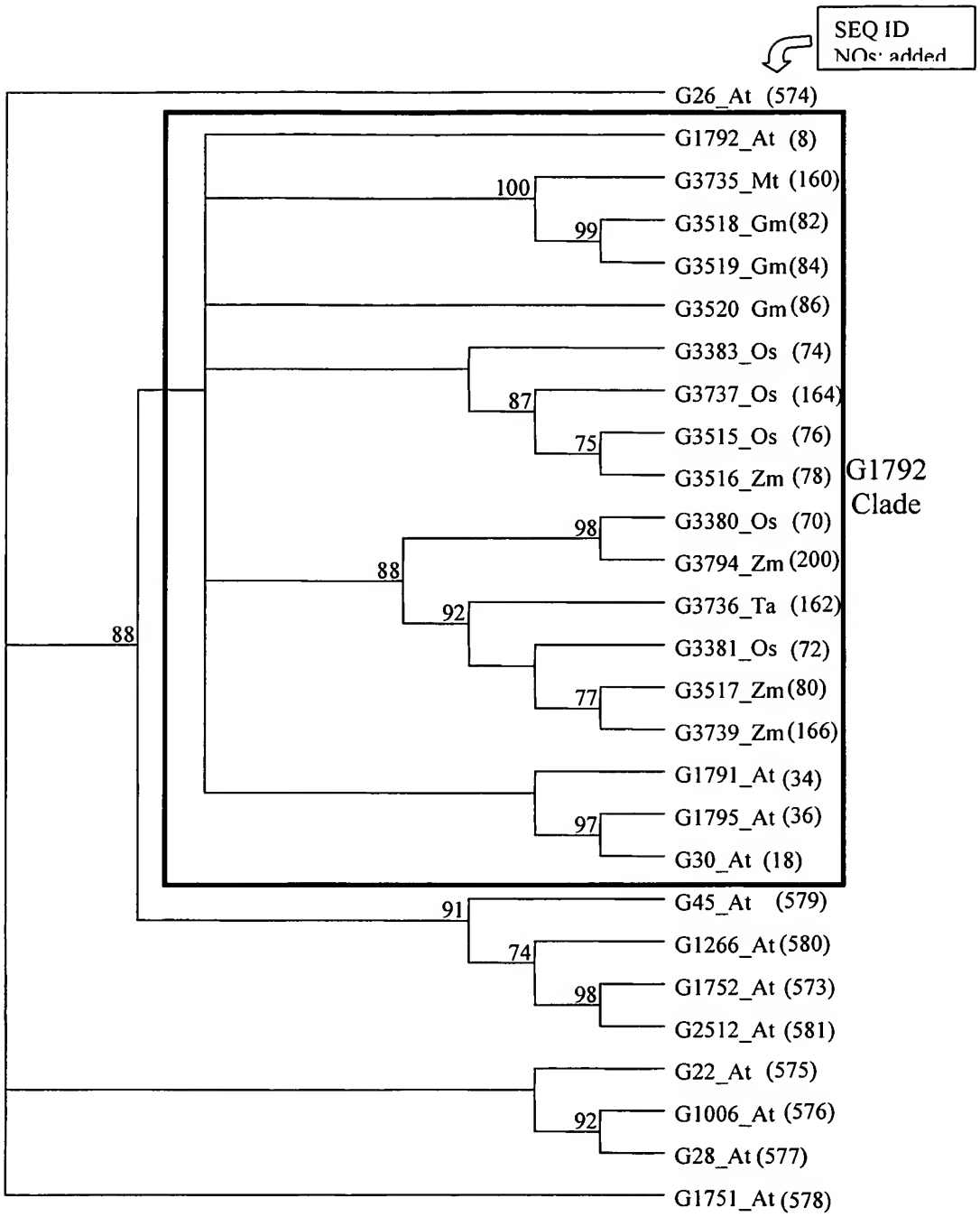
SEQ ID
NOs added
G26_At (574)
G1792_At (8)
G3735_Mt (160)
G3518_Gm (82)
G3519_Gm (84)
G3520 Gm (86)
G3383_Os (74)
G3737_Os (164)
G3515_Os (76)
G3516_Zm (78)
G3380_Os (70)
G3794_Zm (200)
G3736_Ta (162)
G3381_Os (72)
G3517_Zm (80)
G3739_Zm (166)
G1791_At (34)
G1795_At (36)
G30_At (18)
G45_At (579)
G1266_At (580)
G1752_At (573)
G2512_At (581)
G22_At (575)
G1006_At (576)
G28_At (577)
G1751_At (578)
100
99
87
75
98
88
92
77
97
91
74
98
92
88
G1792
Clade

FIG. 14

SEQ ID NOs: added

```
1                                                                                       70
G2767 (645) ~~MIIPETDS FFFQEQPQ.. .HQPLYPDEA LSPSLFGFDH YDHFYESFLP SQEIFLPSPK TRVFNESQEL
G1131 (646) MDMIIPETDS FFFQSQPQLE FHQPLFQEEA PSQT.....H FDPFCDQFLS PQEIFLPNPK NEIFNETHDL
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3753 (648) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3751 (649) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G793 (650) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G591 (651) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3750 (652) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3748 (653) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3749 (654) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G589 (655) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1061 (656) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2791 (657) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3774 (658) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3760 (659) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
```

FIG. 16A

SEQ ID NOs: added

```
71                                                                       140
G2767 (645) DSF.HTPKHQ KLIDSSFHFN SHDPF...SP SPESNYLLDS YITEASNISK FQAPDFSSTF KVGWTEQGDT
G1131 (646) DFFLPTPKRQ RLVNSSYNCN TQNHFQSRNP NFFDPFGDTD FVPESCTFQE FRVPDFSLAF KVGRGDQDDS
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3753 (648) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3751 (649) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G793 (650) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G591 (651) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3750 (652) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3748 (653) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3749 (654) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G589 (655) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1061 (656) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2791 (657) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3774 (658) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3760 (659) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
```

FIG. 16B

SEQ ID NOs: added

141							210
G2767	(645)	KKRELSAQSI	AARKRRRRIT	EKTQELGKLI	PGSQKHNTAE	MFNAAAKYVK	FLQAQIEILQ LKQTKMQTLD
G1131	(646)	KKPTLSSQSI	AARGRRRRIA	EKTHELGKLI	PGGNKLNTAE	MFQAAAKYVK	FLQSQVGILQ LMQTTKK..G
G2766	(42)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2149	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2555	(40)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1134	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3771	(194)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3763	(180)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3764	(182)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3767	(188)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3768	(190)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3769	(192)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3765	(184)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3744	(174)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3755	(178)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G592	(26)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3742	(172)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3086	(16)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3782	(198)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3740	(168)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3741	(170)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3772	(196)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3746	(176)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~

FIG. 16C

SEQ ID NOs: added

211							280
G2767	(645)	SSKVGREMQF	LLGSQEIQEK	LSTEEVCVVP	REMVQVLKAE	ECILTNPKIS	RDINKLLSTN LMN~~~~~~~
G1131	(646)	SSNVQMETQY	LLESQAIQEK	LSTEEVCLVP	CEMVQDLTTE	ETICRTPNIS	REINKLLSKH LAN~~~~~~~
G2766	(42)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2149	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2555	(40)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1134	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3771	(194)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3763	(180)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3764	(182)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3767	(188)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3768	(190)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3769	(192)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3765	(184)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3744	(174)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3755	(178)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G592	(26)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3742	(172)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3086	(16)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3782	(198)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3740	(168)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3741	(170)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3772	(196)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3746	(176)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~MDYSAGSYM
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~

FIG. 16D

SEQ ID NOs: added

281							350	
G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2766	(42)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2149	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2555	(40)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1134	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3771	(194)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3763	(180)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3764	(182)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3767	(188)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3768	(190)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3769	(192)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3765	(184)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3744	(174)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3755	(178)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G592	(26)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3742	(172)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3086	(16)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3782	(198)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3740	(168)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3741	(170)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3772	(196)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3746	(176)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3752	(647)	WPGNSGSENY	NFVDGSSESY	AEEGSLPPSG	YFMGAGSDRS	LKITENERNP	TMLANGCLPY	NTQAHPLSGQ
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3751	(649)	~~~~~~~~MG	GFAYPFTPSP	AWSRDAVFAG	SPWAAGGVSS	LADALVSYGA	VDDEEAAFLG	KTAASSPSTA
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~MQPCSR
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~

FIG. 16E

SEQ ID NOs: added

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351                                                                  420
G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086 (16)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) ILPKGELPNN LLDLQQLQNS SNLRSNSIPP GVLQCNSTSG TFDAKLDTPG LAELPHALSS SIDSNGSDIS
G3753 (648) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3751 (649) RLHEQQQLLL EAELLRHGDG LGFAAMDDDG GAAMLGALEP CAMPLTDSGG PPVI..CSSS SNDSSGSEHS
 G793 (650) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G591 (651) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3750 (652) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3748 (653) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3749 (654) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~MQ PNARQMRGGG GGGGGGQDDF FDQMLSTLPA
 G589 (655) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ MVNLVNVFNM SKSNPSNLKY YNLHPSFKHH
G1061 (656) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2791 (657) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3774 (658) EMQGLNSLLN SSSQISLQDL QNHTTNQIQN SHMNHQHQLA HFDSTSHDDF LEQMLSSCSW TDLNPNKPLL
G3760 (659) ~~~~~~~~~~ ~~~~~~~MQP TTREMQAMAA AGQQISLDDL RAAAGGVHDD FLDQMLGGLP PSAWPELSSA
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FIG. 16F

SEQ ID NOs: added

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421                                                                  490
G2767  (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131  (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766  (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149  (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555  (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134  (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771  (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763  (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764  (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767  (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768  (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769  (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765  (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766  (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744  (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755  (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592  (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742  (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086   (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782  (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740  (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741  (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772  (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746  (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752  (647) AFLADVHAVS ...SAPTLCS AFQNVSSFME PV.....NLD AFGFQGAQNV AMLNKTS... ....LPNGN.
G3753  (648) ~~~~~~MLFL ...QRQALCS TFQNASSFME PV.....NLE AFSFQGAQSD SVLNKTT... ....HPDGN.
G3751  (649) AAMPAGGGFL VGEQQQHVPP AAYAAGGVLP SMAAGEETPQ SFGFGSLFNG DLLQEATVSK YHHHQQQQQ.
 G793  (650) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~MANN NNIPHDSISD PSPTDDFFEQ ILGLSNFSG.
 G591  (651) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~MASN N..PHDNLSD QTPSDDFFEQ ILGLPNFSA.
G3750  (652) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~M SRRRSTSTSP GMAGQQPQQQ GPPEDDFFDQ FFSLT.....
G3748  (653) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~MLQ LSELHRQ...
G3749  (654) VWSELGSGKP AWDLTAGAVG GGGGASDDHS AAAFDDSALL ASRLRQHQID GGGDKPIMLQ LSDLHRHHG.
 G589  (655) KALNLKRHFN NIHFHSHSPP KKKKTEAMNS SSLLTPSSSP SPHLQSPA.T FDHDDFLHHI FSSTPWPSS.
G1061  (656) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~MMN SSLLTPSSSS SSHIQTPSTT FDHEDFLDQI FSSAPWP.S.
G2791  (657) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3774  (658) WDPNTLNDIK PPDETTPSNN NNDATTNVAS FSSFDEHSTL ASKFRNHQIS SNNNAPKNAA AAALMLQHQ.
G3760  (659) AGGKAPDGGA QAEQMQHQPQ HLGGGGGLYD DSALLASRLR QHQISGGGGG EAVKQMVLQQ LADLRQEHHV
```

FIG. 16G

SEQ ID NOs: added

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491                                                                          560
G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) .PSLFDNAAI ASLHDSKEFL NGGSIPSFGT VLQ.A.LGAG GLKAAQQE.Q N.IRNIPLPT FTSGSHLAVT
G3753 (648) .ISVFDSAAL ASLHDSKEFI S.GRLPSFAS VQE.TNVAAS GFKTQKQE.Q NAVCNVPIPT FTARNQIAVA
G3751 (649) .LGVVPSSQP HHLNDDIDF. NTGKLMSFAS GQQHVTPSID SLQIDQKEFS SGLHHLNLSS LISGPLASFN
 G793 (650) .SSGSGLSGI .GGV..GPPP MMLQLGSGNE GNHNHMGAIG GGGPVGFHNQ MFPLGLSLDQ G..KGHGFLK
 G591 (651) .SSAAGLSGV DGGLGGGAPP MMLQLGSGEE G..SHMGGLG GSGPTGFHNQ MFPLGLSLDQ G..KGPGFLR
G3750 (652) .SSFPGAA.. PGGRAAGDQP FSLALSLDAA AAAE...ASG SGKRLGVGDD AEGGGSKADR ETVQLTGLFP
G3748 (653) ..AGGGEEDG SGAFSPLPLF TDR...TNVP PREEMEGGFK SPNAAAGGEH ALFNGFGVHG GSGGAGQ..P
G3749 (654) .LAAGDDSGG AAGFLPLSLF ADR...S... .QDDIDAAFK SPNGAR.GDH ALYNGFGAAG MHGAAAMQPP
 G589 (655) .VL.DDTPPP TSDCAPVTGF HHHDADSRNQ .ITMIPLSHN H......PND ALFNGFS.TG SL..P..FHL
G1061 (656) .VV.DDAHPL PSD.....GF HGHDVDSRNQ PIMMMPLNDG S......SVH GLYNGFSVAG SL..P.NFQI
G2791 (657) ~ME.NGNGEG KGEFINQN.. NDFFLDSMSM LSSLPPCWDP SLPPPPPPPQ SLFHALAVDA PF..PDQFHH
G3774 (658) .LL.RDSGLL NMPLSLPG.. NDVVVDA.ST FESPNPSGKA SVQTFYNGFA GSLHGVGQSS NQ..TQHFQH
G3760 (659) LLQGMGRSTS TGGSRDGGLL LPLSLGSGGS GGDVQALLKA VADSAGGEAA GVFGG.SFAG SLHHHQQQQQ
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FIG. 16H

SEQ ID NOs: added

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561                                                                    630
G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) DAQGPPLPSK IPPLIHDHNS EYPINHSSDV EPQAN..SAP GNSANAKPRT RARRGQATDP HSIAER....
G3753 (648) AMPGSLIPQK IPSWINENKS EGPVSHPSDV QIQPN..SV. GNGVGVKPRV RARRGQATDP HSIAER....
G3751 (649) ATQSHRQPAE ACG..GKNGG AAPFVNLSEV LPKGNGSGSA GNGA.PKPRV RARRGQATDP HSIAER....
 G793 (650) PD...ETGKR FQDDVLDNRC SSMKPIFHGQ PMSQPAPPMP HQQSTIRPRV RARRGQATDP HSIAER....
 G591 (651) PEGGHGSGKR FSDDVVDNRC SSMKP..... PMQQPPPSAP HQPTSIRPRV RARRGQATDP HSIAER....
G3750 (652) PVFG...GGG VQPPNL..RP TPPTQVFHPQ QSKQGGAAVG PQPPAPRPKV RARRGQATDP HSIAER....
G3748 (653) PFGQ..... .......... .......... .......... .......... .......... ..........
G3749 (654) PFGQGGSMPA QSFGGGAAAS GGGGGGSASA AAAAGASSGG GAAAPPRQRQ RARRGQATDP HSIAERVYHS
 G589 (655) PQGS.GG... .....QTQ.. ...TQSQATA SATTGG.AT. .AQPQTKPKV RARRGQATDP HSIAER....
G1061 (656) PQGSEGGLMN QQGQTQTQ.. ...TQPQASA STATGGTVA. .APPQSRTKI RARRGQATDP HSIAER....
G2791 (657) PQESGGPTMG SQEGLQPQ.. ...GTVSTTS .APV..... ...VRQKPRV RARRGQATDP HSIAER....
G3774 (658) PQGSSNPMQG QNFGAVPA.. ...GGGSATN QAPASGAAAG GAPAQPRQRV RARRGQATDP HSIAER....
G3760 (659) HFQSH..PQQ QTAPLPGQGF GGGAGASGGV SQPQAGAACG GAAAPPRQRV RARRGQATDP HSIAER....
```

FIG. 16I

SEQ ID NOs: added

631 700

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G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G592  (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) .......... ........LR REKISERMKN LQVLVPNSNK ADKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G3753 (648) .......... ........LR REKISDRMKN LQDLVPNSNK ADKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G3751 (649) .......... ........LR REKISDRMKD LQELVPNSNK TNKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G793  (650) .......... ........LR RERIAERIRS LQELVPTVNK TDRAAMIDEI VDYVKFLRLQ VKVLSMSRLG
G591  (651) .......... ........LR RERIAERIRA LQELVPTVNK TDRAAMIDEI VDYVKFLRLQ VKVLSMSRLG
G3750 (652) .......... ........LR RERIAERMRA LQELVPNTNK TDRAAMLDEI LDYVKFLRLQ VKVLSISRLG
G3748 (653) .......... ........LR RERIAERMKS LQELVPNANK TDKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G3749 (654) PTTFPFSPPF FIASMPCCLR RERIAERMKA LQELVPNANK TDKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G589  (655) .......... ........LR RERIAERMKS LQELVPNGNK TDKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G1061 (656) .......... ........LR RERIAERMKA LQELVPNGNK TDKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G2791 (657) .......... ........LR RERIAERMKS LQELVPNTNK TDKASMLDEI IEYVRFLQLQ VKVLSMSRLG
G3774 (658) .......... ........LR RERIAERMKA LQELVPNANK TDKASMLDEI IDYVKFLQLQ VKVLSMSRLG
G3760 (659) .......... ........LR RERIAERMKA LQELVPNANK TDKASMLDEI VDYVKFLQLQ VKVLSMSRLG
```

FIG. 16J

SEQ ID NOs: added

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701                                                                   770
G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) APGAVLPLLR ESQTECHSNP SLS..... ....ASTISQ G.PTDMP... DSEDSSA.FE QEVVKLMETS
G3753 (648) APGAVLPLLA ESQTEGYRGQ LLS..... ....APTNAQ G.LLDTE... ESEDTFA.FE EEVVKLMETS
G3751 (649) AAEAVVPLLT ETQTES.PGF LLSPRSSSGE RQAGAGAVTG GLPGDQP... ELLDGGAMFE QEVVKLMEDN
 G793 (650) GAGAVAPLVT EMPLSSSVED ET.......Q AVWEKWSNDG .......... ........TE RQVAKLMEEN
 G591 (651) GAGAVAPLVT DMPLSSSVED ETGEGGRTPQ PAWEKWSNDG .......... ........TE RQVAKLMEEN
G3750 (652) GAGAVAQLVA DIPL..SVKG EASDSGGNQQ .IWEKWSTDG .......... ........TE RQVAKLMEED
G3748 (653) GAAGMAPLVA SMSSE..GNS NGSSNGGGGK ASKGGTGGEG GGGGGGGGGG GTGGGMRVTE QQVAKMMEED
G3749 (654) GASAVAPLVA NMSSESNGNG NATSSSGNGE AANGSSNGDN NG........ ..GGTLRVTE QQVAKLMEED
 G589 (655) GAASAS...S QISEDAGG.. .......... .SHE..NTSS ........SG EAK....MTE HQVAKLMEED
G1061 (656) GAASVS...S QISE.AGG.. .......... .SHG..NASS AMVGGSQTAG NSNDSVTMTE HQVAKLMEED
G2791 (657) GAGSVGPRLN GLSAEAG... ....GRLNAL TAPC..NGLN GNGN...ATG SSNESLRSTE QRVAKLMEED
G3774 (658) GAAAVAPLVA DMSSEGGGDC IQANGKSNGG GAQA..STTN TNTNQTTATT TSNDSLTMTE HQVAKLMEED
G3760 (659) GAAFLLWTVR VCVVLGGSRR RGGRGRER~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
```

FIG. 16K

SEQ ID NOs: added

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771                                                                        840
G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) IISAMQYLQN KGLCLMPIAL ASAISNQKGM AAAAAIPPEK ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3753 (648) ITSAMQYLQN KGLCLMPVAL ASAISTQKGV .SAASIPPEQ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3751 (649) MTTAMQYLQS KGLCLMPVAL ASAISAQKGT SSAAVRPEKK KNGDGDGGGD EEDVKGEFDA PRRPPVGRPK
 G793 (650) VGAAMQLLQS KALCIMPISL AMAIYHSQPP DTSSSIVKPE MNPPP~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G591 (651) VGAAMQLLQS KALCMMPISL AMAIYHSQPP DT.SSVVKPE NNPPQ~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3750 (652) IGAAMQFLQS KALCMMPISL AMAIYDTQQT QDGQP.VKHE PNTPS~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3748 (653) MGTAMQYLQG KGLCLMPISL ASAISSATSS ASLLSRPSIR HAGAPPQTML DAAGPTSPAA MSNGDDPRHA
G3749 (654) MGSAMQYLQG KGLCLMPISL ATAISSATSS .SLLPRT... .GGGAGGSLH EGGNGTSP.P LVNG..TATG
 G589 (655) MGSAMQYLQG KGLCLMPISL ATTISTATCP SR....SPF. ...VKDTGVP LSPNLSTTIV ..........
G1061 (656) MGSAMQYLQG KGLCLMPISL ATAISTATCH SR....NPLI PGAVADAGGP SPPNLSAMTI QSTSTKMGSG
G2791 (657) MGSAMQYLQG KGLCLMPISL ATAISSSTTH SRGSLFNPIS SAVAAEDSNV TATAVAAPEA SS.TMDDVSA
G3774 (658) MGSAMQYLQG KGLCLMPISL ATAISTATCP TRNVNVNPLI NAAAGATHFP TAANPAGEGP SSPSMSVLTV
G3760 (659) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
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FIG. 16L

SEQ ID NOs: added

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841                                                                                910
G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2149 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2555 (40)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1134 (38)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3763 (180) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3764 (182) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3767 (188) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3768 (190) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3769 (192) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3765 (184) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G592 (26)  ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3742 (172) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3086  (16) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3782 (198) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~MSY VKMLNSRAQP ISTGLSIPSL SVGHTDVNGI QISFSQYPMD
G3740 (168) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3741 (170) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3772 (196) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3746 (176) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3752 (647) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3753 (648) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3751 (649) EMRSRV~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G793 (650) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G591 (651) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3750 (652) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3748 (653) KADGGAGGTQ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3749 (654) CDDAGVFFSV KFVVELSFLL LNEDCRGKEE SKLLVQKGP~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G589 (655) ...ANGNG.. ..SSLVTVKD APSVSKP~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1061 (656) NGKLNGNGVT ERSSSIAVKE AVSVSKA~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2791 (657) SKA~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3774 (658) QSAIAGNDGA ASVSKP~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3760 (659) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
```

FIG. 16M

SEQ ID NOs: added

911							980	
G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2766	(42)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2149	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2555	(40)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1134	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3771	(194)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3763	(180)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3764	(182)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	MSVMYSPVLN	YSDVEHQLRK
G3767	(188)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3768	(190)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3769	(192)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3765	(184)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3744	(174)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3755	(178)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G592	(26)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3742	(172)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3086	(16)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3782	(198)	SEKMPQMQQQ	TNNVDFMDLD	YKPPLCNVSQ	ADGVMALTER	GSSNNFQGPT	GLMRYHSAPS	SFFSSLGEEE
G3740	(168)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3741	(170)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3772	(196)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3746	(176)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~

FIG. 16N

SEQ ID NOs: added

981							1050	
G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2766	(42)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2149	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~MYQSSS
G2555	(40)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1134	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3771	(194)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3763	(180)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3764	(182)	NQDMDSSIGH	PQQHCHQPNS	GLLRYCSAPS	SLLASLIDNT	IHGCVNEESF	TSENHHHHQQ	QQQQHYLPST
G3767	(188)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3768	(190)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3769	(192)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3765	(184)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3744	(174)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3755	(178)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G592	(26)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~MDSNNH
G3742	(172)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3086	(16)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	MESEFQQHHF	LLHDHQHQRP	RNSGLIRYQS	APSSYFSSFG
G3782	(198)	NNNIISEYFS	GNSSNPLQSN	TKPLQQNQPS	ILSFHLRENE	PAKHLGERNE	ISEKEMHASS	LPSKEVQGNV
G3740	(168)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3741	(170)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~M	NPAPSRAPQR
G3772	(196)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3746	(176)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	MNRMTAPHGG	MPPPPMPAAG
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~

FIG. 16O

SEQ ID NOs: added

1051							1120	
G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2766	(42)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~MYP	PNSSKSTAH.	.DGGGDADTN
G2149	(38)	STSSSSQRSS	LPGGGGLIRY	GSAPGSFLNS	VVDEVIGGGS	SNARDFTGYQ	PSSDNFIGNF	FTGAADSSSL
G2555	(40)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1134	(38)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3771	(194)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3763	(180)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3764	(182)	SSEMETMLSK	LLPSNNGWSN	SEALQEFGGK	PCEAGNRGIY	STRATTTEWL	FLWWLSVDLP	ISANSRPCQM
G3767	(188)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3768	(190)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3769	(192)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~MNNEPLV	LQQQQQQQQQ	QQQSNNMYNY
G3765	(184)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3744	(174)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3755	(178)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G592	(26)	LYDPNPTGSG	LLRFRSAPSS	VLAAFVDDDK	IGFDSDRLLS	RFVTSNGVNG	DLGSPKFEDK	SPVSLTNTSV
G3742	(172)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3086	(16)	ESIEEFLDRP	TSPETERILS	GFLQTTDTSD	NVDSFLHHTF	NSDGTEKKPP	EVKTEDEDAE	IPVTATATAM
G3782	(198)	SREDLGKHHP	LDAILENVPD	VSQDSFGTSQ	MSLMSQVQVS	EPSGQHIDSS	YQMNSVCCDT	LDQSGGRMGN
G3740	(168)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3741	(170)	QQRGGEMSAR	YGGGLQFFAD	APPAGVEGGA	ATARTFFPVP	GGGGEQQPPE	RAMRQQHYGG	GGSGAAEISL
G3772	(196)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3746	(176)	GLARYGSAPG	SLLASIADSV	IRGRGVGVVD	QLHHHQHQHQ	LPPPPPPQQQ	QMVGRYFSAE	SSGLTSCESS
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~

FIG. 16P

SEQ ID NOs: added

1121 1190

G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2766	(42)	QYDSAAGATR	DFSSLGPQTH	HHPPPQRQQQ	HQQNPNLVG.	HYLPGEPSS.	.IGFDSNASS SSSLFRHRSS
G2149	(38)	RSDSTTCGVN	NSSDGQKQLG	NNNNNNSNKD	IFLDRSYGGF	NEISQQHKSN	DIG.GGNSSG SYSLARQRSS
G2555	(40)	~~~~~~~~~~	~~~~~~~~MQ	STHI...SGG	SSGGGGGGGG	EVSRSGLSRI	RSAPATWIET LLEEDEEEGL
G1134	(38)	~~~~~~~~~~	~~~~~~~~MQ	PTSVGSSGGG	DDGGGRGGGG	GLSRSGLSRI	RSAPATWLEA LLEEDEEESL
G3771	(194)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3763	(180)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~MANLAAALR DVASFRGCDV
G3764	(182)	VDLPVASGSA	FDGSFGVVHS	MASEDSIQSK	MGIRNCSNLF	RQKSSPAAFF	SIENDLAALR EVGSFKADDV
G3767	(188)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~MG TLG.AVNNSI
G3768	(190)	~~~~~~~~~~	~~MEQGSFSM	GLRHSGNNSN	LTRHSSSPAG	LFSQINIE..	NVYAGVRGMG SLG.AVNNSI
G3769	(192)	GSSGTQNFYQ	STGRPPLPNQ	MKTGHGSSSN	LIRHGSSPAG	LFSNINIDIT	GYAAVVRGMG TMGAAANNTS
G3765	(184)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~MKGVGNYSG
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3744	(174)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3755	(178)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G592	(26)	SYAATLPPPP	QLEPSSFLGL	PPHYPRQSKG	IMNSVGLDQF	LGINNHHTKP	VESNLLRQSS SPAGMFTNLS
G3742	(172)	~~~~~~~~~~	~~~~MASAMA	GLYRTVSSGG	TESTAAAAGN	SLLRQSSSPA	GFLNHLTMDN GYGNMLRAGM
G3086	(16)	EVVVSGDGEI	SVNPEVSIGY	VASVSRNKRP	REKDDRTPVN	NLARHNSSPA	GLFSSIDVET AYAAVMKSMG
G3782	(198)	AYSSTSKNTL	IRHSSSPAGL	LSELVAEGRG	TFESGFMEG.	.TVRNSIGVG	NSCGDIIIPN RVQRQMNRLQ
G3740	(168)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~MAS.	....NGFPGS .KGGGGSGAE
G3741	(170)	GHGHGHGGKH	HFHQFGVEAK	DGGGGGDQSG	FLTRHNSSPP	GFFSSPVMD.	....NGFSSS ARPAGSSLGE
G3772	(196)	~~~~~~~~~~	~MYPSSSSSS	SSSSQSMTQA	GLTRYGSAPG	SLLTSTVDSL	LVDPVPVPTF PESLLSLPAK
G3746	(176)	CRTTTTTSTA	AAADVGRHPL	ERAYGGSGEI	HVDASSAAVP	LFRHSSSPAG	LLSRLMADPH GNGMAATRGM
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~

FIG. 16Q

SEQ ID NOs: added

```
1191                                                                    1260
G2767 (645) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1131 (646) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2766 (42)  PAGFYDQHLP TDPNGFSLGR PNGGY....G GGGEQGPSRL KSELRFSSGS SSHQEHNSLP RISEV.EAAA
G2149 (38)  PADFF.TYLA SDKNNFSLNQ PTSDYSPQGG SNGGRGHSRL KSQLSFTN.. .....HDSLA RINEVNETPV
G2555 (40)  KPNLCLTELL TGNNNSGGVI TSRDDSFEFL SSVEQGLYNH HQGGGFHRQN SSPADFLSGS GSGTDGYFSN
G1134 (38)  KPNLGLTDLL TGNSND..LP TSR.GSFEFP IPVEQGLY.. .QQGGFHRQN STPADFLSGS ....DGFIQS
G3771 (194) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~MQPTSG
G3763 (180) SNGQAITSSS GLHGTLNFSS RPSSCSTRMP QIAENGNEDV EANCVESRNL RNDNINTTKC YMPSFTTDFW
G3764 (182) SNGLVTASTG GLHSSHTFSS RPSSCLKRLP QIAENGNESL EENCDQSRNL VNDN.GSSKC YIPSFTNELW
G3767 (188) EDAKFSSSRR LKNQ.PNYSS SGRMSSNAEI GDKGN.RESS PDNEAFAD.. GNDFI.TGFQ VGHWDDAAIM
G3768 (190) EDAKFSSSRR LKNQ.PNYSS SGRMSSIAEI GDKGY.RESS PDSEAFAD.. GNDFM.AGYQ VGHWDDTAMM
G3769 (192) EEANFSPATR MKNNAPNF.S SGLMSSRAEV GNKSNTQNNN AENEGFAESQ GNEFIPAGFP VGPWNDSAIM
G3765 (184) VNGNDGELSL SMNRMKNHIS FSSISPSSSL GMLSPTSKMG TEGIRVTRPE DGRQGSCNGD ARYYGPGFPY
G3766 (186) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3744 (174) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~M
G3755 (178) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~MS QISEMDSEEV GGSSPEAAGG GRGYIPGYPM
 G592 (26)  DQNGYGSMRN LMNYEEDEES P...SNSNGL RRHCSLSSRP PSSLGMLSQI PEIAPETNFP YSHWNDPSSF
G3742 (172) GGGGGGGDPR LKGQLSFSSR QGSVMSQISE MGSEDEELAG GGGSPEAGSN GGGAARGGYG GGY....AMG
G3086  (16) GFGGSNVMST SNTEASSLTP RSKLLPPTSR AMSPISEVDV KPG..FSSRL PPRTLSGGFN RSFGNEGSA.
G3782 (198) QNSSPGLLSQ LSVDMSVPEM VDRLNMAMVG SSAENQAGSS SDDSSLGSGN AGQGYISNFS VKSWDDEAMT
G3740 (168) AHHHPSMAGS GSGSSSGGRK MKSQLSFTA. ..GPPHLSHI AEDGAFPDRA ....GA.... ....EASVPR
G3741 (170) VRH.....GA MSSSSNNNKK MKAPLSFASS RQGSGGLSQI SEDG.IPDLT DSIHGAAHHH .GRSEENVST
G3772 (196) SKDLSTTTPP PSLPPCSARK ALSTASFPIS PNTMGWVSTI TPGGLSNSNS NSNCSLLKSQ LSFTHESLSN
G3746 (176) GGYSGGGGDA GAMAHRRLSS QWSFSRQDLP QISEMGGLIP DIGESIVTGG GGNSSSDGAG HGAQSSSFLS
G3752 (647) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3753 (648) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3751 (649) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G793 (650) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G591 (651) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3750 (652) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3748 (653) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3749 (654) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
 G589 (655) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G1061 (656) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G2791 (657) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3774 (658) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
G3760 (659) ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~ ~~~~~~~~~~
```

FIG. 16R

SEQ ID NOs: added

1261 1330

G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2766	(42)	AARNGVASSS	MSFGNNRTNN	WDNSSSHISF	TIDQPGKRSK	N..SDFFTLE	TQYSMP...Q TTLEMATMEN
G2149	(38)	HDGSGHSFSA	ASFGAATTDS	WDDGSGSIGF	TVTRPSKRSK	D..MD.SGLF	SQYSLP...S DT.SMNYMDN
G2555	(40)	FGIPANYD..	.....YLSTN	VDISP.TKRS	RDMET.....	QFSSQLKEEQ	MSG....GIS GMMDMNMDK.
G1134	(38)	FGIQANYD..	.....YLSGN	IDVSPGSKRS	REMEALFSSP	EFTSQMKGEQ	SSGQVPTGVS SMSDMNMEN.
G3771	(194)	GGGLARFR..	.....SAPAS	WLESVLLKEE	EEEEDPLSFT	QLLSTIDDAP	SHSQHQLYGA ALSNKDKTPE
G3763	(180)	DGSAFSAS..	.....RTASN	.RGEISFSTS	KAMDIQDE..	DFGYQKVGLT	HHLSLP...G SSSRMATMEK
G3764	(182)	ESSAFNAP..	.....KT.EN	.EDEIMFSTS	NILESQEA..	DFSFQNLGLT	HHLSLP...S SSTKMSSIEK
G3767	(188)	SDNVGGLK..	.....RFREN	.DSKPFS.GL	NAAETQNETG	...QTHAPLA	HQLSLPN... TSAEIAAIEK
G3768	(190)	SDNVGGLK..	.....RFSEE	.DSKPFS.GL	NAVETQNETG	...QTHAPLA	HQLSLPN... TSAEMAAIEK
G3769	(192)	SDNVTGLK..	.....RFRDE	.DVKPFSGGL	NAPESQNETG	GQQPSSSALA	HQLSLPN... TSAEMAAIEK
G3765	(184)	AS.WNEPS..	.....HPKRQ	.RS....SND	ELLFD.SQNG	EPGNQVQRLS	HHLSLPR... TSSEMFAMDN
G3766	(186)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~MLS	HHLSLPK... TSAEMITMEK
G3744	(174)	SSGWEESS..	.....LMSDT	.NI....SGV	KRQRDSSEPS	QNGGGGGGLA	HQFSLPK... TSSEMAAIEK
G3755	(178)	GSGWEDSS..	.....ALLSD	.NL....SGI	KRPRDSSEPG	QS.....GLT	HQFSVPK... TSSEMATIEK
G592	(26)	IDNLSSLK..	.....REAED	.DGKLFLGA.	.....QNG	ESGNRMQLLS	HHLSLPKSSS TASDMVSVDK
G3742	(172)	SSAWEEPS..	.....PPATS	.LLPDSSLPS	KRPRDDLPRQ	LSLPAASKNS	SKPPSSASAA ASPEMAAIEK
G3086	(16)	SSKLTALA..	.....RTQ..	.....SGGL	DQYKTKDE..	DSASRRPPLA	HHMSLPKS.. ....LSDIEQ
G3782	(198)	PGNFAGMQNG	ANFTARKRAK	ELDMKLMQGL	NNSDHQKVEG	GIRGASALTN	HPYNLPR..S TSSEL.AMEE
G3740	(168)	TFSAGGSSGG	GGFSIVGPWE	ESRDII.S.T	LGGYESQFGG	...M..ASTS	.....A. ..LEMAGMDR
G3741	(170)	HDHVVRSFSS	GGFSI.GSWE	DSNSIVFS.T	STGKSGAHGN	DDII..ATPS	NYESQLVAP. ..REMAGVEK
G3772	(196)	TVNVDPSSTT	FGMD...PW.	DNNSIAFSAT	STKRSKTNTN	DPDILHSLNS	ALESQFNLPH TSLEMSTVDK
G3746	(176)	SRNFSMSSWD	DTNSIMFSPP	SSSK..KARV	AAAAAGDHGD	DMVSSFSNID	SQFGLSK..Q SSLEMAGMDD
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~ ~~~~~~~~~~

FIG. 16S

SEQ ID NOs: added

1331							1400	
G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2766	(42)	LMNIPEDSVP	CRARAKRGFA	THPRSIAERE	RRTRISGKLK	KLQELVPNMD	KQT.SYADML	DLAVEHIKGL
G2149	(38)	FMQLPEDSVP	CKIRAKRGCA	THPRSIAERE	RRTRISGKLK	KLQDLVPNMD	KQT.SYSDML	DLAVQHIKGL
G2555	(40)	..IFE.DSVP	CRVRAKRGCA	THPRSIAERV	RRTRISDRIR	RLQELVPNMD	KQT.NTADML	EEAVEYVKAL
G1134	(38)	..LME.DSVA	FRVRAKRGCA	THPRSIAERV	RRTRISDRIR	KLQELVPNMD	KQT.NTADML	EEAVEYVKVL
G3771	(194)	IFMLE.DSVP	CRVRAKRGCA	THPRSIAERV	RRTRISDRIR	KLQELVPNMD	KQT.NTADML	DEAVAYVKFL
G3763	(180)	LYQIQ.GSVP	CKIRAKRGFA	THPRSIAERE	RRTRISARIK	KLQDLFPKSD	KQT.STADML	DLAVEYIKDL
G3764	(182)	FLQIQ.GSVP	CKIRAKRGFA	THPRSIAERV	RRTRISERIK	KLQDLFPKSE	KQT.STADML	DLAVEYIKDL
G3767	(188)	FLQFS.DSVP	CKIRAKRGCA	THPRSIAERV	RRTKISERMR	KLQDLVPNMD	KQT.NTADML	DLAVDYIKDL
G3768	(190)	FLQFS.DSVP	CKIRAKRGCA	THPRSIAERV	RRTKISERMR	KLQDLVPNMD	KQT.NTADML	DLAVDYIKDL
G3769	(192)	FLQLS.DSVP	CKIRAKRGCA	THPRSIAERV	RRTKISERMR	KLQDLVPNMD	KQT.NTADML	DLAVEYIKDL
G3765	(184)	LLQFS.DSVP	CKIRAKRGFA	THPRSIAERV	RRTRISERIR	KLQELVPTMD	KQT.STAEML	DLALDYIKDL
G3766	(186)	LLQFP.DSVP	CKIRAKRGCA	THPRSIAERV	RRTRISERMR	KLQELVPHMD	KQT.NTADML	DLAVEYIKDL
G3744	(174)	FLQFQ.DAVP	CKIRAKRGCA	THPRSIAERV	RRTRISERIR	KLQELVPNMD	KQT.NTADML	DLAVDYIKDL
G3755	(178)	FLQFQ.DAVP	CKIRAKRGCA	THPRSIAERV	RRTKISERIR	KLQELVPNMD	KQT.NTSDML	DLAVDYIKDL
G592	(26)	YLQLQ.DSVP	CKIRAKRGCA	THPRSIAERV	RRTRISERMR	KLQELVPNMD	KQT.NTSDML	DLAVDYIKDL
G3742	(172)	FLQFQ.DAVP	CKIRAKRGCA	THPRSIAERV	RRTRISERIR	KLQELVPNME	KQT.NTADML	DLAVDYIKEL
G3086	(16)	LL..S.DSIP	CKIRAKRGCA	THPRSIAERV	RRTKISERMR	KLQDLVPNMD	TQT.NTADML	DLAVQYIKDL
G3782	(198)	FLQ...DAVP	CKVRAKRGCA	THPRSIAERV	RRTRISERMR	KLQELVPNSD	KQTVNIADML	DEAVEYVKSL
G3740	(168)	YLQLQHDQVP	FKVRAKRGCA	THPRSIAERE	RRTRISEKLR	KLQELVPNMD	KQT.STADML	DLAVEHIKGL
G3741	(170)	YLQMQHDQVP	FRVRAKRGCA	THPRSIAERE	RRTRISEKLR	KLQALVPNMD	KQT.STSDML	DLAVDHIKGL
G3772	(196)	LLHIPEDSVP	CKIRAKRGCA	THPRSIAERE	RRTRISGKLK	KLQDLVPNMD	KQT.SYADML	DLAVQHIKGL
G3746	(176)	FLQLQPDSVA	CRARAKRGCA	THPRSIAERE	RRTRISKRLK	KLQDLVPNMD	KQT.NTSDML	DIAVTYIKEL
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~~~

FIG. 16T

SEQ ID NOs added

1401			1428	
G2767	(645)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G1131	(646)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G2766	(42)	QHQVEVRP~~	~~~~~~~~~~	~~~~~~~~
G2149	(38)	QHQLQNLKKD	QENCTCGCSE	KPS~~~~~
G2555	(40)	QSQIQELTEQ	QKRCKCKPKE	EQ~~~~~~
G1134	(38)	QRQIQELTEE	QKRCTCIPKE	EQ~~~~~~
G3771	(194)	QKQIEELSEH	QRRCKCVVQE	~~~~~~~~
G3763	(180)	QKQVKILRDT	RANCTCTSNQ	KH~~~~~~
G3764	(182)	QQKVKILSDC	KAKCKCTSNE	KHYTRTCA
G3767	(188)	QKQVQTLSDC	HAKCTCSHEK	QQ~~~~~~
G3768	(190)	QKQVQTLSDC	HAKCTCSHEK	QQ~~~~~~
G3769	(192)	QNQVQTLSDN	RAKCTCSHKK	QQ~~~~~~
G3765	(184)	QKQFKTLSDK	RAKCKCINMQ	KSEADRVA
G3766	(186)	QKQFKTLSEK	RANCKCISMP	KADTNQIA
G3744	(174)	QKQVKGLNDS	RANCTCSA.K	HQQYSG~~
G3755	(178)	QKQVKVLKES	QDNCTCSASK	NQQHSC~~
G592	(26)	QRQYKILNDN	RANCKCMNKE	KKSI~~~~
G3742	(172)	QKQVKVLNDS	RSSCTCSASK	QKHFAG~~
G3086	(16)	QEQVKALEES	RARCRCSSA~	~~~~~~~~
G3782	(198)	QKQVQELAEN	RAKCTCTHNP	DCAYKT~~
G3740	(168)	QSQLQALKHE	QEKCTC.CSR	P~~~~~~~
G3741	(170)	QSQLQTLKED	KEKCTCSCKQ	ASRNRPAD
G3772	(196)	QTQVQKLHKE	MENCTCGCKQ	SK~~~~~~
G3746	(176)	QGQVEKLKHD	QANCTCSGKH	DC~~~~~~
G3752	(647)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G3753	(648)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G3751	(649)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G793	(650)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G591	(651)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G3750	(652)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G3748	(653)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G3749	(654)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G589	(655)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G1061	(656)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G2791	(657)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G3774	(658)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~
G3760	(659)	~~~~~~~~~~	~~~~~~~~~~	~~~~~~~~

FIG. 16U

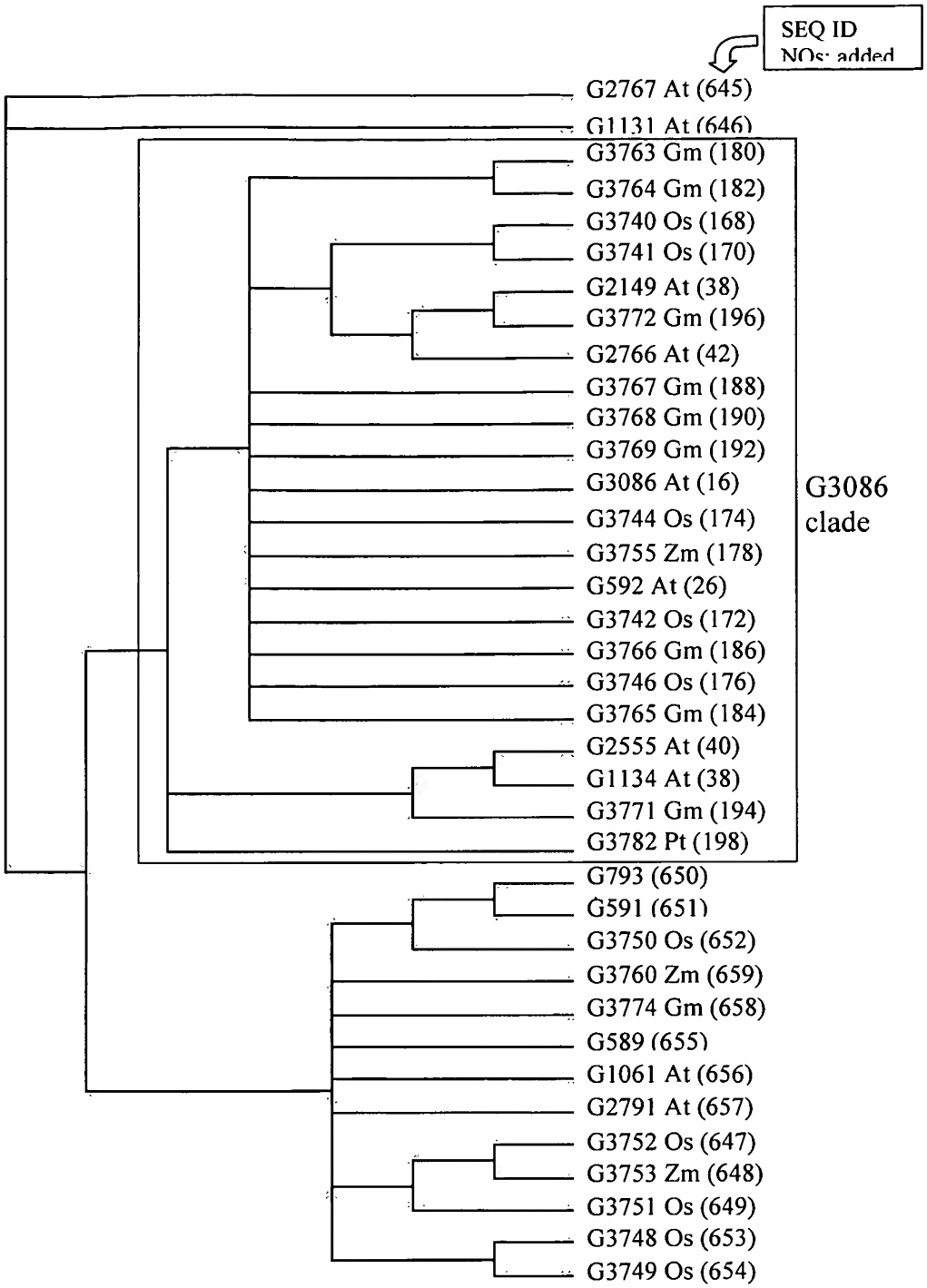
SEQ ID NOs: added
G2767 At (645)
G1131 At (646)
G3763 Gm (180)
G3764 Gm (182)
G3740 Os (168)
G3741 Os (170)
G2149 At (38)
G3772 Gm (196)
G2766 At (42)
G3767 Gm (188)
G3768 Gm (190)
G3769 Gm (192)
G3086 At (16)
G3744 Os (174)
G3755 Zm (178)
G592 At (26)
G3742 Os (172)
G3766 Gm (186)
G3746 Os (176)
G3765 Gm (184)
G2555 At (40)
G1134 At (38)
G3771 Gm (194)
G3782 Pt (198)
G3086 clade
G793 (650)
G591 (651)
G3750 Os (652)
G3760 Zm (659)
G3774 Gm (658)
G589 (655)
G1061 At (656)
G2791 At (657)
G3752 Os (647)
G3753 Zm (648)
G3751 Os (649)
G3748 Os (653)
G3749 Os (654)

FIG. 17

SEQ ID NOs: added

```
G3810_Gm (212)  ------------------------------------------------------------
G3811_Gm (214)  ------------------------------------------------------------
G3824_Le (220)  ------------------------------------------------------------
G922 _At   (4)  ------------------------------------------------------------
G3812_Gm (479)  ------------------------------------------------------------
G3814_Os (218)  ------------------------------------------------------------
G3813_Os (216)  ------------------------------------------------------------
G3827_Os (222)  ------------------------------------------------------------
G306 _At (480)  MAESG---DFN---GGQPPPHSPLRTTSSGSSSS-----NNRGPPPPPPPPLVMVRKRLA 49
G3821_Ps (481)  MAACA---LFNGVGGGNTTPDETNNNSTSNSSNISTEDFHNMPQQQPHHSERKLLRKRMA 57
G3822_Zm (482)  MPPPPPPPPLTPYCRRCPPPHLPPPPPSSPNHFLLH---YLHQLDHQEAAAAAMVRKRPA 57
G2738_At (483)  ------------------------------------------------------------
G3009_At (484)  ------------------------------------------------------------
G307 _At (485)  ------------------------------------------------------------
G308 _At (486)  ------------------------------------------------------------
G309 _At (487)  ------------------------------------------------------------
G3816_Ta (488)  ------------------------------------------------------------
G3817_Os (489)  ------------------------------------------------------------
G3818_Gm (490)  ------------------------------------------------------------
G3010_At (491)  ------------------------------------------------------------
G3826_Le (492)  ------------------------------------------------------------
G644 _At (493)  ------------------------------------------------------------
G3823_Os (494)  ------------------------------------------------------------
G3820_Os (495)  ------------------------------------------------------------
G1768_At (496)  ------------------------------------------------------------
G3815_Os (497)  ------------------------------------------------------------
G3825_Le (498)  ------------------------------------------------------------
G852 _At (499)  ------------------------------------------------------------
G3819_Os (500)  ------------------------------------------------------------
G1767_At (501)  ------------------------------------------------------------
```

FIG. 19A

SEQ ID NOs: added

```
G3810_Gm (212)  ----------------------------------------------------------
G3811_Gm (214)  ----------------------------------------------------------
G3824_Le (220)  ----------------------------------------------------------
G922 _At   (4)  ----------------------------------------------------------
G3812_Gm (479)  ----------------------------------------------------------
G3814_Os (218)  ----------------------------------------------------------
G3813_Os (216)  ----------------------------------------------------------
G3827_Os (222)  ----------------------------------------------------------
G306 _At (480)  SEMSSNPDYNNSS----RPPRRVS------------------------------------ 69
G3821_Ps (481)  SEMELQLHNNNNNNDYHRFSRRTNNTSSLNCSLPATTQKGVTTTTTTTLASSGNNNNNNN 117
G3822_Zm (482)  SDMDLPPPRRHVT---------------------------------------------- 70
G2738_At (483)  ----------------------------------------------------------
G3009_At (484)  ----------------------------------------------------------
G307 _At (485)  ----------------------------------------------------------
G308 _At (486)  ----------------------------------------------------------
G309 _At (487)  ----------------------------------------------------------
G3816_Ta (488)  ----------------------------------------------------------
G3817_Os (489)  ----------------------------------------------------------
G3818_Gm (490)  ----------------------------------------------------------
G3010_At (491)  ----------------------------------------------MGSYPDGFPG 10
G3826_Le (492)  ----------------------------------------------MEALFQEQLFP 11
G644 _At (493)  ----------------------------------------------MITEPSLTGISG 12
G3823_Os (494)  ----------------------------------------------------------
G3820_Os (495)  ----------------------------------MVIELPFDNQYTTTETEQPHDGS 23
G1768_At (496)  ----------------------------------------------------------
G3815_Os (497)  ----------------------------------------------------------
G3825_Le (498)  ----------------------------------------------------------
G852 _At (499)  ----------------------------------------------------------
G3819_Os (500)  ----------------------------------------------------------
G1767_At (501)  ----------------------------------------------------------
```

FIG. 19B

SEQ ID NOs: added

```
G3810_Gm (212)  ------------------------------------------------------------
G3811_Gm (214)  ------------------------------------------------------------
G3824_Le (220)  ------------------------------------------------------------
G922 _At   (4)  ------------------------------------------------------------
G3812_Gm (479)  ------------------------------------------------------------
G3814_Os (218)  ------------------------------------------------------------
G3813_Os (216)  ------------------------------------------------------------
G3827_Os (222)  ------------------------------------------------------------
G306 _At (480)  -----HLLDSNYN---------------TVTPQQPPSLTAAATVSSQPNP---------- 99
G3821_Ps (481)  NNNNYHYHNNNNNSIINNNNNNNVALSRDNVAIQNFPTVTVTTNYSTMLLPSSCSSNLNNS 177
G3822_Zm (482)  ----------------------------GDLSDVTAAAAAGVGGSGAP---------- 90
G2738_At (483)  ------------------------------------------------------------
G3009_At (484)  ------------------------------------------------------------
G307 _At (485)  ------------------------------------------------------------
G308 _At (486)  ------------------------------------------------------------
G309 _At (487)  ------------------------------------------------------------
G3816_Ta (488)  ------------------------------------------------------------
G3817_Os (489)  ------------------------------------------------------------
G3818_Gm (490)  ------------------------------------------------------------
G3010_At (491)  SMDELDFNKDFDLPPSSNQT-LGLANGFYLDD---LDFSSLDPP-EAYPSQNNNNNNINN 65
G3826_Le (492)  CADSFIFR--HPSIPMDPRK-EVIQNG--LNNHPSFDQDYFSNHVVGVGDSSPP------ 60
G644 _At (493)  MVNRNRLSGLPDQPSSHSFTPVTLYDGFNYNLSSDHINTVVAAPENSVFIREEEEE---- 68
G3823_Os (494)  ----------------------------------MDSPEYCQTNSNIT---------- 14
G3820_Os (495)  SCSSQQQLSLYNYSPSDPQLFSQPTTGSRTYLSGAVTIPGICNDKSNLGQQQFQIDAA-- 81
G1768_At (496)  ------------------------------------------------------------
G3815_Os (497)  ------------------------------------------------------------
G3825_Le (498)  ------------------------------------------------------------
G852 _At (499)  ------------------------------------------------------MVEQ 4
G3819_Os (500)  ------------------------------------------------------------
G1767_At (501)  ------------------------------------------------------------
```

FIG. 19C

SEQ ID NOs: added

```
G3810_Gm (212)  ------------------------------------------------------------
G3811_Gm (214)  ------------------------------------------------------------
G3824_Le (220)  ------------------------------------------------------------
G922 _At   (4)  ------------------------------------------------------------
G3812_Gm (479)  ------------------------------------------------------------
G3814_Os (218)  ------------------------------------------------------------
G3813_Os (216)  ------------------------------------------------------------
G3827_Os (222)  ------------------------------------------------------------
G306 _At (480)  ------------PLS--------VCGFSGLPVFPSDRGGRNVMMSVQPMDQDSS------ 133
G3821_Ps (481)  STSAANYTHYQQPLVEEQNTLPEICGFSGLPLFPSQNNQTNRTNNNSSNNRNNTNTVVDV 237
G3822_Zm (482)  ----------------------SSASAQLPALPTQLHQLPPAFQHHAPEVDVPAHPAPA 127
G2738_At (483)  ------MKRGYGETWDPPPK---PLPASRSGEGPSMADKKKADDDNNNSNMDDELLAVLG 51
G3009_At (484)  ------MKRSHQET-------------SVEEEAPSMVEKLENGCGGGGDDNMDEFLAVLG 41
G307 _At (485)  ------MKRDHHQFQGRLSNHGTSSSSSSISKDKMMMVKKEEDGGGN---MDDELLAVLG 51
G308 _At (486)  ------MKRDHHHHHQ---------------DKKTMMMNEEDDGNG-----MDELLAVLG 34
G309 _At (487)  ------MKREHNHRES----------SAGEGGSSSMTTVIKEEAAG-----VDELLVVLG 39
G3816_Ta (488)  ------MKREYQDAGG-------SGGGG--GGMGSSEDKMMVSAAAGEGEEVDELLAALG 45
G3817_Os (489)  ------MKREYQEAGG-------SSGGGSSADMGSCKDKVMAG-AAGEEEDVDELLAALG 46
G3818_Gm (490)  ---------------------------------MASSSSNGSSSGSKSWDIDGDLAGFG 26
G3010_At (491)  KAVAGDLLSSSSDDADFSDSVLKYISQVLMEED-MEEKPCMFHDALALQAAEKSLYEALG 124
G3826_Le (492)  --------PQEEGEKDYSDAMYKFLSQMLMEEDDLENKPCMFHDCMALQAKERYLSDVLH 112
G644 _At (493)  --------EDPADDFDFSDAVLGYISQMLNEED-MDDKVCMLQESLDLEAAERSLYEAIG 119
G3823_Os (494)  ---------------------LDYINRILMEED-IDEKISIKKGQDALQATEKPFYDILG 52
G3820_Os (495)  --------LSLGYQRIRSSDALCYISRVLMED--VDERVDLHQGEAALQAAEKPFYDILG 131
G1768_At (496)  ------------------------------------------------------------
G3815_Os (497)  ---------------------------------MPYYNNSVPSGGNGRFYITQNHQDAH 26
G3825_Le (498)  ---------------------------------MDSHHLVAYGVTGSDLSYSSCPTVSP 26
G852 _At (499)  TVVREHIKARVMSLVRSAEPSSYRNPKLYTLNENGNNNGVSSAQIFDPDRSKNPCLTDDS 64
G3819_Os (500)  ----------------------MGMSPEPCNSISDCSQQQSHHLTLTQQQDSTIICTN 36
G1767_At (501)  -----------------------MDTLFRLVSLQQQQQSDSIITNQSSLSRTSTTTTG 35
```

FIG. 19D

SEQ ID NOs: added

```
G3810_Gm (212)  ------------------------------------------------------------
G3811_Gm (214)  ------------------------------------------------------------
G3824_Le (220)  ------------------------------------------------------------
G922 _At   (4)  ------------------------------------------------------------
G3812_Gm (479)  ------------------------------------------------------------
G3814_Os (218)  ------------------------------------------------------------
G3813_Os (216)  ------------------------------------------------------------
G3827_Os (222)  ------------------------------------------------------------
G306 _At (480)  -SSS------ASPTVWVDAIIRDLIHSS--TSVSIPQLIQNVRDIIFPCNPNLGALLEYR 184
G3821_Ps (481)  VSSSPSMEETSATTNWIDGILKDLIHTS--NSVSIPQLINNVREIIYPCNPNLALVLEHR 295
G3822_Zm (482)  AHAQAGGEATASTTAWVDGIIRDIIGSSGGAAVSITQLIHNVREIIHPCNPGLASLLELR 187
G2738_At (483)  YKVRSSEMAEVAQKLEQLEMVLSN---------DDVG-STVLNDSVHYNPSDLSNWVES- 100
G3009_At (484)  YKVRSSDMADVAQKLEQLEMVLSN---------DIASSSNAFNDTVHYNPSDLSGWAQS- 91
G307 _At (485)  YKVRSSEMAEVALKLEQLETMMSNV--------QEDGLSHLATDTVHYNPSELYSWLDN- 102
G308 _At (486)  YKVRSSEMADVAQKLEQLEVMMSNV--------QEDDLSQLATETVHYNPAELYTWLDS- 85
G309 _At (487)  YKVRSSDMADVAHKLEQLEMVLG----------DGISNLSDETVHYNPSDLSGWVES- 86
G3816_Ta (488)  YKVRASDMADVAQKLEQLEMAMGMGGVGAGAAPDDSFATHLATDTVHYNPTDLSSWVES- 104
G3817_Os (489)  YKVRSSDMADVAQKLEQLEMAMGMGGVSAPGAADDGFVSHLATDTVHYNPSDLSSWVES- 105
G3818_Gm (490)  YKVRSSELQHVAENMERLENVMDIVN-----SSTNNNISQLASDTVFYNPSDIGSWVDT- 80
G3010_At (491)  EKYPSSSSASSVDHPERLASDSPDGSCSGGAFSDYASTTTTTSSDSHWSVDGLEN-RPS- 182
G3826_Le (492)  GSENNYSPQSVIINPHDSSS----------FLSNYSPDSIESP---QWDLN--------- 150
G644 _At (493)  KKYPP-SPERNLAFAERNSE----------NLDRVVPGNYTGGDCIGFGNGGIKPLSSG- 167
G3823_Os (494)  KAYPSSSKETAINGDSQADYP---------DNGSS--SYHEQACSGSFVSDLLGSQ---- 97
G3820_Os (495)  QVYPPSLNRLALHSANEPDTP---------DESSSRNNYHNRYHSSHSSFNMLQPLPTP- 181
G1768_At (496)  ------------------------------------MDNVR------GSIMLQPLPEI- 16
G3815_Os (497)  YASSDDGSQKIGSSPQAFEAP-----YCTLESSSANGAHPAH------SSASSHSISPI- 74
G3825_Le (498)  LENRPFGTSKFDSGNSPLVNY-----FNSETFNTVSDYQEQP------SCTENLSGASS- 74
G852 _At (499)  YPSQSYEKYFLDSPTDEFVQHPIGSGASVSSFGSLDSFPYQSRPVLGCSMEFQLPLDST- 123
G3819_Os (500)  QELDYYYRFYDVDEAAFDGNEVELVSRFSKVTRMDHMISSPYQPTWSPAQAAVDVVGSS- 95
G1767_At (501)  SPQTAYHYNFPQNDVVEECFNFFMDEEDLSSSSSHHNHHNHNNPNTYYSPFTTPTQYHP- 94
```

FIG. 19E

SEQ ID NOs: added

```
G3810_Gm (212)  ------------------------------------------------------------
G3811_Gm (214)  ------------------------------------------------------------
G3824_Le (220)  ------------------------------------------------------------
G922 _At   (4)  ------------------------------------------------------------
G3812_Gm (479)  ------------------------------------------------------------
G3814_Os (218)  ------------------------------------------------------------
G3813_Os (216)  ------------------------------------------------------------
G3827_Os (222)  ------------------------------------------------------------
G306 _At (480)  LRSL--------------------------------------------------MLL 191
G3821_Ps (481)  LRLLTEPNTCVPERKRNSTEQSGVN----------------------------VNGNVL 326
G3822_Zm (482)  LRSL--------------------------------------------------LAA 194
G2738_At (483)  --------------------------------------------------------MLS 103
G3009_At (484)  --------------------------------------------------------MLS 94
G307 _At (485)  --------------------------------------------------------MLS 105
G308 _At (486)  --------------------------------------------------------MLT 88
G309 _At (487)  --------------------------------------------------------MLS 89
G3816_Ta (488)  --------------------------------------------------------MLS 107
G3817_Os (489)  --------------------------------------------------------MLS 108
G3818_Gm (490)  --------------------------------------------------------LLS 83
G3010_At (491)  WLHTPMPSNFVFQSTSRSNSVTGGGGGGNSAVYGSGFGDDL---VSNMFKDDELAMQFKK 239
G3826_Le (492)  -----------FESPASMSTLS------NHDSFFTSFGNG---------------HFEE 177
G644 _At (493)  -------FTLDFRNPQSCSSILSVP---QSNGLITIYGDGIDESSKNNRENHQSVWLFRR 217
G3823_Os (494)  ----------------------------DAHSITTDWSSEFD----------RLALQFRR 119
G3820_Os (495)  ------------LSPYSYGRSLFLP---NQHLVSTAWTSTFG----------IPGFQIRR 216
G1768_At (496)  --------------------------------------------------------AES 19
G3815_Os (497)  --------------------------------------------------------SGS 77
G3825_Le (498)  --------------------------------------------------------SSG 77
G852 _At (499)  --------------------------------------------------------STS 126
G3819_Os (500)  --------------------------------------------------------ETS 98
G1767_At (501)  ------------------------------------------------------------
```

FIG. 19F

SEQ ID NOs: added

```
G3810_Gm (212)  ----------------------------------------------------------
G3811_Gm (214)  ----------------------------------------------------------
G3824_Le (220)  ----------------------------------------------------------
G922 _At   (4)  ----------------------------------------------------------
G3812_Gm (479)  ----------------------------------------------------------
G3814_Os (218)  ----------------------------------------------------------
G3813_Os (216)  ----------------------------------------------------------
G3827_Os (222)  ----------------------------------------------------------
G306 _At (480)  DPSSSSDPSPQTFE----------------------------------------PLYQI 210
G3821_Ps (481)  AASNVNNSSVKLMN----------------------------------------RVDDV 345
G3822_Zm (482)  DPAPLPPPPQPQQH----------------------------------------ALLHG 213
G2738_At (483)  ELNNPASSDLDT------------------------------------------------ 115
G3009_At (484)  DLN--YYPDLDP------------------------------------------------ 104
G307 _At (485)  ELNPPPLPASSNGL------------------------------------------------ 119
G308 _At (486)  DLNPP----SSN------------------------------------------------ 96
G309 _At (487)  DLDPTRIQEKPD------------------------------------------------ 101
G3816_Ta (488)  ELNAPPPPLPPAP--QLNASTSS----------------------------TVTGSGG 135
G3817_Os (489)  ELNAPLPPIPPAPPAARHASTSS----------------------------TVTGGGG 138
G3818_Gm (490)  EFDQTAS------------------------------------------------- 90
G3010_At (491)  GVEEASKFLPKSSQLFIDVDSYIPMNSGSKENGSEVFVKTEKKDETEHHHHHSYAPPPNR 299
G3826_Le (492)  GAVNVLQSGSSSN----------------------------------------SPTG 194
G644 _At (493)  EIEEANRFNPEENELIVNFR----------------------------------EENC 241
G3823_Os (494)  GVEEAKRFIPNIEKLVDDPEKN--------------GLYACKQTTETTE--QKGKHENK 162
G3820_Os (495)  GAEEAKRFVPIIDKLVIDLDTDR-------------GLSISKMTTKAKVGDKKRYAIFE 262
G1768_At (496)  ----------------------------------------------------------
G3815_Os (497)  PLSHHDSHSDHT------------------------------------------------ 89
G3825_Le (498)  SSLDYNQYFHRP------------------------------------------------ 89
G852 _At (499)  STRLLGDYQAVS------------------------------------------------ 138
G3819_Os (500)  RVRKKRFWDVLES------------------------------------------------ 111
G1767_At (501)  ----------------------------------------------------------
```

FIG. 19G

SEQ ID NOs: added

```
G3810_Gm (212)  ------------------------------------------------------------
G3811_Gm (214)  ------------------------------------------------------------
G3824_Le (220)  ------------------------------------------------------------
G922 _At   (4)  ----------------------------------------------------MVAMFQEDNG 10
G3812_Gm (479)  ------------------------------------------------------------
G3814_Os (218)  ---------------------------------------------------------MFQDDML 7
G3813_Os (216)  ---------------------------------------------------------MVQDEGS 7
G3827_Os (222)  ---------------------------------------------------------MIT-FGL 6
G306 _At (480)  S------NNPSPPQQQQQHQ---------QQQQQHKP-------PPPPIQQQERENS-ST 247
G3821_Ps (481)  VPTSLHFSDSSTLLNQNQNQNMFPNWGATQINNNNNPSVSLVTLPSQPLSTQQDQQH-QL 404
G3822_Zm (482)  APAAAPAGLTLPPPPPLPDK----------RRHEHPP-------PCQQQQQEEPHPAPQS 256
G2738_At (483)  -------TRSCVDRSEYDLRAIPGLSAFPKEEEVF-----------------DEEASSKR 151
G3009_At (484)  -------NRIC------DLRPIT-----DDDECCS-----------------SNSNSNKR 129
G307 _At (485)  DPVLPSPEICGFPASDYDLKVIPGNAIYQFPAIDSSSSSNNQNKRLKSCSSPDSMVTSTS 179
G308 _At (486)  --------------AEYDLKAIPGDAILNQFAIDSASSSNQG-------GGGDTYTTNKR 135
G309 _At (487)  --------------SEYDLRAIPGSAVYPR---------------------DEHVTRRS 125
G3816_Ta (488)  --YFDLPPSVDSSSSIYALRPIPSPAGATAPADLSADSVRDPKRMRTGGSSTSSSSSSS 193
G3817_Os (489)  SGFFELPAAADSSSSTYALRPISLPVVATADPS-AADSARDTKRMRTGGGSTSSSSSSS 197
G3818_Gm (490)  --------------LPYDFSDFLD---------------------------------- 100
G3010_At (491)  LTGKKSHWRDEDEDFVEERSNKQSAVYVEES-ELSEMFDKILVCGPGK--------PVCI 350
G3826_Le (492)  LREKKNRHR-GDVAADQQRSNKQMATFVHDESEPLEMYDNVLLCLNNP----------YV 243
G644 _At (493)  VSKARKNSSRDEICVEEERSSKLPAVFGEDI-LRSDVVDKILVHVPGGESMKEFNALRDV 300
G3823_Os (494)  IRNHPHDPHVEHIELMEARNSKHMAISTSET-IRDEMFDSILLCN-RQLPG-----EVAN 215
G3820_Os (495)  LTDQRHSPYTTDLDILEGRNSKRYAITYCEI-IRNDMFDRVLLCYGVENFA-----EASN 316
G1768_At (496)  --------------------------IDDAIC-HELSMWPDDA---------------- 35
G3815_Os (497)  -----YNSPPSASCVTEITDLQIKLRELENAILGPELDIAYDSP---------------- 128
G3825_Le (498)  -----SPSEDHLPEAPYSRNMKHTLLQLESALMGPDKEAMKSSPYLGENMGAQTSGQRYK 144
G852 _At (499)  -----YSPSMDVVEEFDDEQMRSKIQELERALLGDEDDKMVGIDN--------------- 178
G3819_Os (500)  ------------------------------------------------------------CK 113
G1767_At (501)  ------------------------------------------------------------ATSST 99
```

FIG. 19H

SEQ ID NOs: added

```
G3810_Gm (212)  ------------MMSL--SPSLGSPN-NLLFREMKSEERGLYLIHLLLTCANHVA--AG 42
G3811_Gm (214)  ------------MMSLSVSPSLGSP------YHMKCELRGLVLIHLLLAGANFVA--TG 39
G3824_Le (220)  ------------------------------------------------------------
G922 _At   (4)  TSSVASSPLQVFSTMSLNRPTLLASSSPFHCLKDLKPEERGLYLIHLLLTCANHVA--SG 68
G3812_Gm (479)  ------------------MDGLGSPS--QWLRELRWDSQGLNPISLLIDCAKCVA--SG 37
G3814_Os (218)  SSATS--------SPASSVYSPSPSPSNGSWVQELSHDQQSVRLIGLLYQCAAEVS--AG 57
G3813_Os (216)  SSSVTSSPLHNFSNMPLHPAAAASPTPPWMVRELR-SDERGLCLIHLLLNCAAAAA--AG 64
G3827_Os (222)  NSRPHPEFRNDLRPSSSSLAAGESESPKAVERLEREGCTRSGSSRRQPRRGAAAAL--AV 64
G306 _At (480)  DAPPQPETVTATVPAVQTNTAEALRERKEEIKRQKQ-DEEGLHLLTLLLQCAEAVS--AD 304
G3821_Ps (481)  QQHP-EDLAPATTTTTTSAELALARKKKEEIKEQKKKDEEGLHLLTLLLQCAEAVS--AE 461
G3822_Zm (482)  PKAPTAEETAAAAAAAQAAAAAAAKERKEEQRRKQR-DEEGLHLLTLLLQCAEAVN--AD 313
G2738_At (483)  IRLG--------------SWCESSD-ESTRSVVLVDSQETGVRLVHALVACAEAIH--QE 194
G3009_At (484)  IRLG--------------PWCDSVTSESTRSVVLIE--ETGVRLVQALVACAEAVQ--LE 171
G307 _At (485)  TGTQIGGVIGTTVTT--TTTTTTAAAESTRSVILVDSQENGVRLVHALMACAEAIQ--QN 235
G308 _At (486)  LKCSNG-----------VVETTTATAESTRHVVLVDSQENGVRLVHALLACAEAVQ--KE 182
G309 _At (487)  K-----------------RTRIESELSSTRSVVVLDSQETGVRLVHALLACAEAVQ--QN 166
G3816_Ta (488)  SLGGGA-RSSVVEAAPPVAAAANAT--PALPVVVVDTQEAGIRLVHALLACAEAVQ--QE 248
G3817_Os (489)  SLGGGASRGSVVEAAPPATQGAAAANAPAVPVVVVDTQEAGIRLVHALLACAEAVQ--QE 255
G3818_Gm (490)  --------------------LDTDQNQNHKPTLVTMEEDSGIRLVHTLMTCADSVQ--RG 138
G3010_At (491)  LNQNFPTESAKVVTAQSNGAKIRGKKST-STSHSNDSKKETADLRTLLVLCAQAVS--VD 407
G3826_Le (492)  EQHSATSITSYSPPNEAKKTSKVGRPRG-GRKHSSIVKKEMVDLRALLTQCAQAMA--NY 300
G644 _At (493)  LKKGVEKKKASDAQGGKRRARGRGRGRGRGGGGGQNGKKEVVDLRSLLIHCAQAVA--AD 358
G3823_Os (494)  LRGMMAKEASDNPKKFQSKGYGKGQRKP---HSSKKKQKEAIDLSVLLIQCAQAIA--SN 270
G3820_Os (495)  LRKIMTKQARKNSLNGQTR--GSAQRKL---RGMKQLKKDVVDLRNLLIHCAQAVA--AD 369
G1768_At (496)  ------------------KDLLL-----------IVEAISRGDLKLVLVACAKAVS--EN 64
G3815_Os (497)  ------------------ESALQPNIMATPENWRQLLGINTGDLKQVIIACGKAVA--EN 168
G3825_Le (498)  AWNKEAQVVRHQQSVVSILNGIQSDKRDNVMEDLPLQGVPSSNLKQLLIACARALA--EN 202
G852 _At (499)  LMEIDSEWSYQNESEQHQDSPKESSSADSNSHVSSKEVVSQATPKQILISCARALS--EG 236
G3819_Os (500)  QKVEAMEAMDTPATATFRVGAGDGGGGGGGGAGGGGGGADGMRLVQLLVACAEAVA--CR 171
G1767_At (501)  PSSTAAAAALASPYSSSGHHNDPSAFSIPQTPPSFDFSANAKWADSVLLEAARAFS--DK 157
```

FIG. 19I

SEQ ID NOs: added

```
G3810_Gm (212)  NLENANTTLEQISMLASPDG--DTMQRIATYFMESLADRILKTWPGIHR-----ALNS-- 93
G3811_Gm (214)  DLQYAYLTLEQISQHASLDG--DTMQRIASYVSEALADRILKTWPGIHR-----ALNS-- 90
G3824_Le (220)  ----------------------MQRIASYFTEALADRILRSWPGLYK-----ALRS-- 29
G922 _At   (4)  SLQNANAALEQLSHLASPDG--DTMQRIAAYFTEALANRILKSWPGLYK-----ALNATQ 121
G3812_Gm (479)  SIKNADIGLEYISQISSPDG--NAVQRMVTYFSEALGYRIIKNLPGVYK-----SLNP-- 88
G3814_Os (218)  SFDRANLCLEHITQLASLDAP-HALQRLAAVFADALARKLLNLILGLSR-----ALLSS- 110
G3813_Os (216)  RLDAANAALEHIASLAAPDG--DAMQRVAAAFAEALARRALRAWPGLCR-----ALLLP- 116
G3827_Os (222)  ASAPSLASCCRRPSIRKLLS--LPLHARPVPPPGSGMRQPLRPSPAALHPR--GAAVAP- 119
G306 _At (480)  NLEEANKLLLEISQLSTPYG--TSAQRVAAYFSEAMSARLLNSCLGIYAA----LPSRWM 358
G3821_Ps (481)  NLEQANKMLLEISQLSTPFG--TSAQRVAAYFSEAISARLVSSCLGIYAT----LPVSSH 515
G3822_Zm (482)  NLDDAHQTLLEIAELATPFG--TSTQRVAAYFAEAMSARLVSSCLGLYAP----LPPGSP 367
G2738_At (483)  NLNLADALVKRVGTLAGSQAG--AMGKVATYFAQALARRIYRDYTAETDVC--------- 243
G3009_At (484)  NLSLADALVKRVGLLAASQAG--AMGKVATYFAEALARRIYRIHPSA------------- 216
G307 _At (485)  NLTLAEALVKQIGCLAVSQAG--AMRKVATYFAEALARRIYRLSPPQ------------- 280
G308 _At (486)  NLTVAEALVKQIGFLAVSQIG--AMRQVATYFAEALARRIYRLSPSQ------------- 227
G309 _At (487)  NLKLADALVKHVGLLASSQAG--AMRKVATYFAEGLARRIYRIYPRD------------- 211
G3816_Ta (488)  NLSAAEALVKQIPLLAASQGG--AMRKVAAYFGEALARRVFRFRPQPDS----------- 295
G3817_Os (489)  NFAAAEALVKQIPTLAASQGG--AMRKVAAYFGEALARRVYRFRP-ADS----------- 301
G3818_Gm (490)  DLAFAGSLIENMQGLLAHVNTNIGIGKVAGYFIDALRRRILGQGVFQTLS---------- 188
G3010_At (491)  DRRTANEMLRQIREHSSPLGN--GSERLAHYFANSLEARLAGTGTQIYTA--------LS 457
G3826_Le (492)  DSRTANELLMRIREHSTPHGD--GTERLAHYLANALEARLSGTGTALYTA--------YA 350
G644 _At (493)  DRRCAGQLLKQIRLHSTPFGD--GNQRLAHCFANGLEARLAGTGSQIYKG--------IV 408
G3823_Os (494)  NHPFASELLRKIRHHALPDGD--GSQRLANCFADGLEARLAGTGSQMYEK--------LM 320
G3820_Os (495)  DRISASELVKKIRQHSSPDGD--SNQRLAFYLVDGLEARLAGIGSQVYRK--------LM 419
G1768_At (496)  NLLMARWCMGELRGMVSISGE--PIQRLGAYMLEGLVARLAASGSSIYKS--------LQ 114
G3815_Os (497)  DVRLTELLISELGQMVSVSGD--PLQRLGAYMLEGLVARLSSSGSKIYKS--------LK 218
G3825_Le (498)  KLDDFEILVAKARSVVSVTGD--PIQRLGAYIVEGLVARKELSGTTIYRS--------LK 252
G852 _At (499)  KLEEALSMVNELRQIVSIQGD--PSQRIAAYMVEGLAARMAASGKFIYRA--------LK 286
G3819_Os (500)  DRAQAAALLRELQAGAPVHGT--AFQRVASCFVQGLADRLPLAHPPALGPASMAFCIPPS 229
G1767_At (501)  DTARAQQILWTLNELSSPYGD--TEQKLASYFLQALFNRMTGSGERCYRT---MVTAAAT 212
```

FIG. 19J

SEQ ID NOs: added

```
G3810_Gm (212)  TRMTLISDEILVQKLFFELFPFLKVAFVLTNQAIIEAMEGEK--VIHIIDLN----AAEA 147
G3811_Gm (214)  SRITMVSDEILVQKLFFELLPFLKFSYILTNQAIVEAMEGEK--MVHIVDLY----GAGP 144
G3824_Le (220)  TKLSVVSEEILVRKMFFEIFPFLKVAFVVTNQAIIEAMEGEK--MVHIVDLN----AAEP 83
G922 _At   (4)  TRTNNVSEEIHVRRLFFEMFPILKVSYLLTNRAILEAMEGEK--MVHVIDLD----ASEP 175
G3812_Gm (479)  SKTSLSSEDILVQKYFYELCPFLKFSYLITNHAIAEAMECEK--VVHIIDLH----CCEP 142
G3814_Os (218)  ANSADAHLVPVARRHMFDVLPFLKLAYLTTNHAILEAMEGER--FVHVVDFSG--PAANP 166
G3813_Os (216)  RASPTPAEVAAARRHFLDLCPFLRLAGAAANQSILEAMESEK--IVHVIDLG----GADA 170
G3827_Os (222)  TRSPGAAVAGAEMRQQVSYC-WRPVRPPPAGG---EEAGGEL--LLRGREL--------- 164
G306 _At (480)  PQT-HSLKMVSAFQVFNGISPLVKFSHFTANQAIQEAFEKED--SVHIIDLD----IMQG 411
G3821_Ps (481)  TP--HNQKVASAFQVFNGISPFVKFSHFTANQAIQEAFEREE--RVHIIDLD----IMQG 567
G3822_Zm (482)  AAARLHGRVAAAFQVFNGISPFVKFSHFTANQAIQEAFEREE--RVHIIDLD----IMQG 421
G2738_At (483)  -AAVNPSFEEVLEMHFYESCPYLKFAHFTANQAILEAVTTAR--RVHVIDLG----LNQG 296
G3009_At (484)  -AAIDPSFEEILQMNFYDSCPYLKFAHFTANQAILEAVTTSR--VVHVIDLG----LNQG 269
G307 _At (485)  -NQIDHCLSDTLQMHFYETCPYLKFAHFTANQAILEAFEGKK--RVHVIDFS----MNQG 333
G308 _At (486)  -SPIDHSLSDTLQMHFYETCPYLKFAHFTANQAILEAFQGKK--RVHVIDFS----MSQG 280
G309 _At (487)  -DVALSSFSDTLQIHFYESCPYLKFAHFTANQAILEVFATAE--KVHVIDLG----LNHG 264
G3816_Ta (488)  -SLLDAAFADLLHAHFYESCPYLKFAHFTANQAILEAFAGCR--RVHVVDFG----IKQG 348
G3817_Os (489)  -TLLDAAFADLLHAHFYESCPYLKFAHFTANQAILEAFAGCH--RVHVVDFG----IKQG 354
G3818_Gm (490)  -SSSYPYEDNVLYHHYYEACPYLKFAHFTANQAILEAFNGHD--CVHVIDFN----LMQG 241
G3010_At (491)  SKKTSAADMLKAYQTYMSVCPFKKAAIIFANHSMMRFT--ANANTIHIIDFG----ISYG 511
G3826_Le (492)  PSRISAANILKAYKAFIRACPFKLLSNIFANKYIRKVI--AGAPKIHIIDFG----ILYG 404
G644 _At (493)  SKPRSAAAVLKAHQLFLACCPFRKLSYFITNKTIRDLVG--NSQRVHVIDFG----ILYG 462
G3823_Os (494)  AKQTSTRDMLKAYHLYFVACPFEMVTYYFSNKTIIDALEGKT--TLHIVDFG----ILFG 374
G3820_Os (495)  ASRTSAESLLKAYSLYLSACPFERASFAYANQTILDASKGQQPRKVHIVHFG----ICTG 475
G1768_At (496)  SREPESYEFLSYVYVLHEVCPYFKFGYMSANGAIAEAMKDEE--RIHIIDFQ----IGQG 168
G3815_Os (497)  CKEPTSSELMSYMHLLYEICPFFKFGYMSANGAIAEAIKGEN--FVHIIDFQ----IAQG 272
G3825_Le (498)  CKEPAGKDLFSYMYILYEICPYLKFGYMAANGAIVEACRNED--RIHIIDFQ----IAQG 306
G852 _At (499)  CKEPPSDERLAAMQVLFEVCPCFKFGFLAANGAILEAIKGEE--EVHIIDFD----INQG 340
G3819_Os (500)  SCAGRDGARGEALALAYELCPYLRFAHFVANACMLEAFEGES--NVHVVDLGMTLGLDRG 287
G1767_At (501)  EKTCSFESTRKTVLKFQEVSPWATFGHVAANGAILEAVDGEA--KIHIVDIS----STFC 266
```

FIG. 19K

SEQ ID NOs: added

```
G3810_Gm (212)  AQWIALLRVLSAHP--EGPPHLRITGVHQKK----------EILDEVAHRLTEEAEKLDI 195
G3811_Gm (214)  AQWISLLQVLSARP--EGPPHLRITGVHHKK----------EVLDQMAHKLTEEAEKLDI 192
G3824_Le (220)  LQWRALLQDLSARP--EGPPHLRITGVHQQK----------EVLDQMAHVLTQEAEKLDI 131
G922 _At   (4)  AQWLALLQAFNSRP--EGPPHLRITGVHHQK----------EVLEQMAHRLIEEAEKLDI 223
G3812_Gm (479)  TQWIDLLLTFKNRQ--GGPPHLKITGIHEKK----------EVLDQMNFHLTTEAGKLDF 190
G3814_Os (218)  VQWIALFHAFRGRR--EGPPHLRITAVHDSK----------EFLANMAAVLSKEAEAFDI 214
G3813_Os (216)  TQWLELLHLLAARP--EGPPHLRLTSVHEHK----------ELLTQTAMALTKEAERLDV 218
G3827_Os (222)  -LLLQLLLIYLVWD--GGTLLLLELSIFFLL----------FCSLVTAMALTKEAERLDV 211
G306 _At (480)  LQWPGLFHILASRP--GGPPHVRLTGLGTSM----------EALQATGKRLSDFTDKLGL 459
G3821_Ps (481)  LQWPGLFHILASRP--GGPPYVRLTGLGTSM----------ETLEATGKRLSDFANKLGL 615
G3822_Zm (482)  LQWPGLFHILASRP--GGPPRVRLTGLGASM----------EALEATGKRLSDFADTLGL 469
G2738_At (483)  MQWPALMQALALRP--GGPPSFRLTGIGPPQT------ENSDSLQQLGWKLAQFAQNMGV 348
G3009_At (484)  MQWPALMQALALRP--GGPPSFRLTGVGNP--------SNREGIQELGWKLAQLAQAIGV 319
G307 _At (485)  LQWPALMQALALRE--GGPPTFRLTGIGPPAP------DNSDHLHEVGCKLAQLAEAIHV 385
G308 _At (486)  LQWPALMQALALRP--GGPPVFRLTGIGPPAP------DNFDYLHEVGCKLAHLAEAIHV 332
G309 _At (487)  LQWPALIQALALRP--NGPPDFRLTGIGYSLT------D----IQEVGWKLGQLASTIGV 312
G3816_Ta (488)  MQWPALLQALALRP--GGPPSFRLTGVGPPQP------DETDALQQVGWKLAQFAHTIRV 400
G3817_Os (489)  MQWPALLQALALRP--GGPPSFRLTGVGPPQP------DETDALQQVGWKLAQFAHTIRV 406
G3818_Gm (490)  LQWPALIQALALRP--GGPPLLRLTGIGPPSS------DNRDTLREIGLRLAELARSVNV 293
G3010_At (491)  FQWPALIHRLSLSRP-GGSPKLRITGIELPQRGF----RPAEEFRRQVIAWLDTVSDTMF 566
G3826_Le (492)  FQWPCLIQGLSMRA--GGPPELRITGIDLPQPGF----KPAGRVEETGRRLEKYCKRFSV 458
G644 _At (493)  FQWPTLIHRFSMYG----SPKVRITGIEFPQPGF----RPAQRVEETGQRLAAYAKLFGV 514
G3823_Os (494)  FQWPCLIQRLAKRE--GGPPKLRITGVDVPQPGF----RPHERIEETGKRLAEYANMFNV 428
G3820_Os (495)  FQWPSLIQRLANEE--GGPPKLRITGIDMPQPGF----HPCEIIEETGKRLADYANLFKV 529
G1768_At (496)  SQWIALIQAFAARP--GGAPNIRITGVGD----------GSVLVTVKKRLEKLAKKFDV 215
G3815_Os (497)  SQWMTLIQALAARP--GGPPFLRITGIDDSNSAY----ARGGGLDIVGMRLYKVAQSFGL 326
G3825_Le (498)  TQWMTLLQALAARP--GGAPYVRITGIDDPVSQY----ARGDGLAAVARRLSAISEEFNI 360
G852 _At (499)  NQYMTLIRSIAELP--GKRPRLRLTGIDDPESVQ----RSIGGLRIIGLRLEQLAEDNGV 394
G3819_Os (500)  HQWRGLLDGLAARAS-GKPARVRVTGVGARMD----------TMRAIGRELEAYAEGLGM 336
G1767_At (501)  TQWPTLLEALATRS--DDTPHLRLTTVVVANKFVNDQTASHRMMKEIGNRMEKFARLMGV 324
                     *:              .    :   K          E L
```

FIG. 19L

SEQ ID NOs: added

```
G3810_Gm (212)  PFQFN--PVASKLENLDFDKLR-------VKTGEALAISSILQLHTLLAWDDEAMQRKSP 246
G3811_Gm (214)  PFQFN--PVLSKLENLDFNKLR-------VKTGEALAISSIMQLHSLLALDEDASRRKSP 243
G3824_Le (220)  PFQFN--QVVSRLENLDVEKLR-------VKTGEALAISSIMQLHTLLAHDNDK---KSP 179
G922 _At   (4)  PFQFN--PVVSRLDCLNVEQLR-------VKTGEALAVSSVLQLHTFLASDDDLMRKNCA 274
G3812_Gm (479)  PLQFY--PVVSKLEDVDFEKLP-------VKIGDALAISSVLQLHSLLATDDDMAGRISP 241
G3814_Os (218)  AFQFN--AVEAKLDEMDFDALRHDLG---VRSGEALAVSVVLQLHRLLAVDDGR--RHAA 267
G3813_Os (216)  PFQFN--PVVSRLDALDVESLRV-------KTGEALAICSSLQLHCLLASDDDA------ 263
G3827_Os (222)  PFQFN--PVVSRLDALDVESLR---------------------------------------- 231
G306 _At (480)  PFEFC--PLAEKVGNLDTERLN-------VRKREAVAVHWLQHSLYDVTGSDAH------ 504
G3821_Ps (481)  PFEFF--PVAEKVGNIDVEKLN-------VSKSEAVAVHWLQHSLYDVTGSDTN------ 660
G3822_Zm (482)  PFEFC--AVAEKAGNVDPEKLG-------VTRREAVAVHWLHHSLYDVTGSDSN------ 514
G2738_At (483)  EFEFKG-LAAESLSDLEPEMFETRPE------SETLVVNSVFELHRLLARSG-------- 393
G3009_At (484)  EFKFNG-LTTERLSDLEPDMFETRTE------SETLVVNSVFELHPVLSQPG-------- 364
G307 _At (485)  EFEYRG-FVANSLADLDASMLELRPSD-----TEAVAVNSVFELHKLLGRPG-------- 431
G308 _At (486)  EFEYRG-FVANTLADLDASMLELRPSE-----IESVAVNSVFELHKLLGRPG-------- 378
G309 _At (487)  NFEFKS-IALNNLSDLKPEMLDIRPG------LESVAVNSVFELHRLLAHPG-------- 357
G3816_Ta (488)  DFQYRG-LVAATLADLEPFMLQPEGEEDPNEEPEVIAVNSVFEMHRLLAQPG-------- 451
G3817_Os (489)  DFQYRG-LVAATLADLEPFMLQPEGEADANEEPEVIAVNSVFELHRLLAQPG-------- 457
G3818_Gm (490)  RFAFRG-VAAWRLEDVKPWMLQVNPN-------EAVAVNSIMQLHRLLASDSDPI----- 340
G3010_At (491)  RLSTT--QLLRNGETIQVEDLKLR-------QGEYVVVNSLFRFRNLLDETVLVN----- 612
G3826_Le (492)  PFVFK--AIAKKWESITLEELEVQ-------RDEVLVVNSLYRLGNIPDETVVPN----- 504
G644 _At (493)  PFEYK--AIAKKWDAIQLEDLDID-------RDEITVVNCLYRAENLHDESVKVE----- 560
G3823_Os (494)  PFQYH--GIASRWETICIEDLSID-------KDEVLIINCMSRMRKLGDETENID----- 474
G3820_Os (495)  PFQYQ--GIASRWETVQIEDLNID-------KDEVLIVNCMFRMKNLGDEMVSMN----- 575
G1768_At (496)  PFRFN--AVSRPSCEVEVENLDVR-------DGEALGVNFAYMLHHLPDESVSME----- 261
G3815_Os (497)  PFEFN--AVPAASHEVYLEHLDIR-------VGEVIVVNFAYQLHHTPDESVSTE----- 372
G3825_Le (498)  AVEFH--AVPVFAPEITWDMLDVR-------PGEALAVNFPLQLHHTPDESVDVN----- 406
G852 _At (499)  SFKFK--AMPSKTSIVSPSTLGCK-------PGETLIVNFAFQLHHMPDESVTTV----- 440
G3819_Os (500)  YLEFR--GINRGLESLHIDDLGVD-------ADEAVAINSVLELHSVVKESRGALN---- 383
G1767_At (501)  PFKFNIIHHVGDLSEFDLNELDVK-------PDEVLAINCVGAMHGIASRGS-------- 369
         (661)   .                  :           GEALA
```

FIG. 19M

SEQ ID NOs: added

```
G3810_Gm (212)  LLLKSS-NGIHLQRVLPMGQSTLGDLLEKDMVN----------GYTPSPDSTSSSPSSLT 295
G3811_Gm (214)  LLSKNS-NAIHLQKGLLMNHNTLGDLLD--------------GYSPSPDSASSSPAASS 287
G3824_Le (220)  LPFKHS-NGVNLNRALVN-QNTLGEFLEKDMAN----------GCSPSNDTASSSPLCST 227
G922 _At   (4)  LRFQNNPSGVDLQRVLMMSHGSAAEARENDMSNNN--------GYSPSGDSASSLPLPSS 326
G3812_Gm (479)  AAAASM----NVQRALHMGQRTFAEWLERDMIN----------AYTLSPDSALS-PLSLG 286
G3814_Os (218)  AGCLTP-----VQIIARSSPRSFGELLERELNTRLQLSPDASVVSSLSPHSPAAATAAHP 322
G3813_Os (216)  ----------------------------------------AAVAGGDKERRSPESGL 280
G3827_Os (222)  ------------------------------------------------------------
G306 _At (480)  ------------------------------------------------------------
G3821_Ps (481)  ------------------------------------------------------------
G3822_Zm (482)  ------------------------------------------------------------
G2738_At (483)  ------------------------------------------------------------
G3009_At (484)  ------------------------------------------------------------
G307 _At (485)  ------------------------------------------------------------
G308 _At (486)  ------------------------------------------------------------
G309 _At (487)  ------------------------------------------------------------
G3816_Ta (488)  ------------------------------------------------------------
G3817_Os (489)  ------------------------------------------------------------
G3818_Gm (490)  ------------------------------------------------------------
G3010_At (491)  ------------------------------------------------------------
G3826_Le (492)  ------------------------------------------------------------
G644 _At (493)  ------------------------------------------------------------
G3823_Os (494)  ------------------------------------------------------------
G3820_Os (495)  ------------------------------------------------------------
G1768_At (496)  ------------------------------------------------------------
G3815_Os (497)  ------------------------------------------------------------
G3825_Le (498)  ------------------------------------------------------------
G852 _At (499)  ------------------------------------------------------------
G3819_Os (500)  ------------------------------------------------------------
G1767_At (501)  ------------------------------------------------------------
```

FIG. 19N

SEQ ID NOs: added

```
G3810_Gm (212)  TSNSRPRGRFLNALWGLSPKVMVVTEQDCNHNGP-------TLMDRLLEALYSYAALFDC 348
G3811_Gm (214)  SALMNSES-FLNALWGLSPKVMVVTEQDFNHNCL-------TMMERLAEALFSYAAYFDC 339
G3824_Le (220)  GS-TKMDS-FLNALWGLSPKVMVVTEQDANHNGT-------TLMERLSESLHFYAALFDC 278
G922 _At   (4)  GR---TDS-FLNAIWGLSPKVMVVTEQDSDHNGS-------TLMERLLESLYTYAALFDC 375
G3812_Gm (479)  AS--PKMGIFLNAIRKLQPKLVVITEQESNLNGS-------NLMERVDRALYFYSALFDC 337
G3814_Os (218)  TTSTPKLGSFLSAVRSLSPKIMVMTEQEANHNGG-------AFQERFDEALNYYASLFDC 375
G3813_Os (216)  SPSTSRADAFLGALWGLSPKVMVVAEQEASHNAA-------GLTERFVEALNYYAALFDC 333
G3827_Os (222)  ---------------GLSLKVMVVTEQEVSHNAA-------GLTERFVEALNYYAALFDC 269
G306 _At (480)  ---------TLWLLQRLAPKVVTVVEQDLSHAG--------SFLGRFVEAIHYYSALFDS 547
G3821_Ps (481)  ---------TLWLLQRLAPKVVTVVEQDLSNAG--------SFLGRFVEAIHYYSALFDS 703
G3822_Zm (482)  ---------TLWLIQRLAPKVVTMVEQDLSHSG--------SFLARFVEAIHYYSALFDS 557
G2738_At (483)  -----SIEKLLNTVKAIKPSIVTVVEQEANHNGI-------VFLDRFNEALHYYSSLFDS 441
G3009_At (484)  -----SIEKLLATVKAVKPGLVTVVEQEANHNGD-------VFLDRFNEALHYYSSLFDS 412
G307 _At (485)  -----GIEKVLGVVKQIKPVIFTVVEQESNHNGP-------VFLDRFTESLHYYSTLFDS 479
G308 _At (486)  -----AIDKVLGVVNQIKPEIFTVVEQESNHNSP-------IFLDRFTESLHYYSTLFDS 426
G309 _At (487)  -----SIDKFLSTIKSIRPDIMTVVEQEANHNGT-------VFLDRFTESLHYYSSLFDS 405
G3816_Ta (488)  -----ALEKVLGTVRAVRPRIVTVVEQEANHNSG-------TFLDRFTESLHYYSTMFDS 499
G3817_Os (489)  -----ALEKVLGTVHAVRPRIVTVVEQEANHNSG-------SFLDRFTESLHYYSTMFDS 505
G3818_Gm (490)  ---GSGIETVLGWIRSLNPKIISVVEQEANHNQD-------RFLERFTEALHYYSTVFDS 390
G3010_At (491)  ----SPRDAVLKLIRKINPNVFIPAILSGNYNAP-------FFVTRFREALFHYSAVFDM 661
G3826_Le (492)  ----SPRDAVLNLIRRIRPDLFIHGALNGTFNTP-------FFVTRFREALFHFSSLYDM 553
G644 _At (493)  ----SCRDTVLNLIGKINPDLFVFGIVNGAYNAP-------FFVTRFREALFHFSSIFDM 609
G3823_Os (494)  ----SARDRVLHMMKRMNPQVFILGVVNGLYSSP-------FFLTRFREVLFHYSSLFDM 523
G3820_Os (495)  ----SARDRVLKIMRMMNPRVFILGIVNGSYSSP-------FFITRFKEVLFHYSSLFDM 624
G1768_At (496)  ----NHRDRLLRMVKSLSPKVVTLVEQECNTNTS-------PFLPRFLETLSYYTAMFES 310
G3815_Os (497)  ----NHRDRILRMVKSLSPRLVTLVEQESNTNTR-------PFFPRYLETLDYYTAMFES 421
G3825_Le (498)  ----NPRDGLIRMIKSLSPKIVTLVEQESNTNTA-------PFLPRFVEALDYYHAMFES 455
G852 _At (499)  ----NQRDELLHMVKSLNPKLVTVVEQDVNTNTS-------PFFPRFIEAYEYYSAVFES 489
G3819_Os (500)  --------SVLQTIRKLSPRAFVLVEQDAGHNGP-------FFLGRFMEALHYYAALFDA 428
G1767_At (501)  -----PRDAVISSFRRLRPRIVTVVEEEADLVGEEEGGFDDEFLRGFGECLRWFRVCFES 424
                                :    MV    .             :          :   ::C
```

FIG. 19O

SEQ ID NOs: added

```
G3810_Gm (212)  LEST---------------VSRTSLERLRVEKMLFGEEIKNIIACE-GSERKERHEKLEK 392
G3811_Gm (214)  LEST---------------VSRASMDRLKLEKMLFGEEIKNIIACE-GCERKERHEKMDR 383
G3824_Le (220)  LEST---------------LPRTSLERLKVEKMLLGEEIRNIIACE-GIERKERHEKLEK 322
G922 _At   (4)  LETK--------------VPRTSQDRIKVEKMLFGEEIKNIISCE-GFERRERHEKLEK 419
G3812_Gm (479)  LDST---------------VMKTSVERQKLESKLLGEQIKNIIACE-GVDRKERHEKLEK 381
G3814_Os (218)  LQRS---------------AAAAA-ERARVERVLLGEEIRGVVACE-GAERVERHERARQ 418
G3813_Os (216)  LEVG---------------AARGSVERARVERWLLGEEIKNIVACD-GGERRERHERLER 377
G3827_Os (222)  LEVG---------------GARGSVERTRVERWLLGEEIKNIVACD-GGERRERHER--- 310
G306 _At (480)  LGAS---------------YGEESEERHVVEQQLLSKEIRNVLAVG-GPSR-SGEVKFES 590
G3821_Ps (481)  LGSS---------------YGEESEERHVVEQQLLSREIRNVLAVG-GPSR-SGEIKFHN 746
G3822_Zm (482)  LDAS---------------YGEDSPERHVVEQQLLSREIRNVLAVG-GPAR-TGDVKFGS 600
G2738_At (483)  LED----------------SYSLPSQDRVMSEVYLGRQILNVVAAE-GSDRVERHETAAQ 484
G3009_At (484)  LED----------------GVVIPSQDRVMSEVYLGRQILNLVATE-GSDRIERHETLAQ 455
G307 _At (485)  LE-----------------GVPNSQDKVMSEVYLGKQICNLVACE-GPDRVERHETLSQ 520
G308 _At (486)  LE-----------------GVPSGQDKVMSEVYLGKQICNVVACD-GPDRVERHETLSQ 467
G309 _At (487)  LE-----------------GPP-SQDRVMSELFLGRQILNLVACE-GEDRVERHETLNQ 445
G3816_Ta (488)  LEGGSSGGGPSEVSSGAAAAPAAAGTDQVMSEVYLGRQICNVVACE-GAERTERHETLGQ 558
G3817_Os (489)  LEGGSSG--QAELSP--PAAGGGGGTDQVMSEVYLGRQICNVVACE-GAERTERHETLGQ 560
G3818_Gm (490)  LEA----------------CPVEPDKALAEMYLQREICNVVSSE-GPARVERHEPLAK 431
G3010_At (491)  CDSK---------------LAREDEMRLMYEKEFYGREIVNVVACE-GTERVERPETYKQ 705
G3826_Le (492)  FEAT---------------LPREDEDRKLFEEEVFARDAMNVIACE-GTERVERPETYKQ 597
G644 _At (493)  LETI---------------VPREDEERMFLEMEVFGREALNVIACE-GWERVERPETYKQ 653
G3823_Os (494)  LDNN---------------VPRNHEARILVEKDLFGNDALNAVACE-GAERIERPESYKQ 567
G3820_Os (495)  IDAN---------------VPRDNEARKMIEGGLFGQEALNIIACE-GAERTERPESYKQ 668
G1768_At (496)  IDVM---------------LPRNHKERINIEQHCMARDVVNIIACE-GAERIERHELLGK 354
G3815_Os (497)  IDVA---------------LPRDDKRRMSAEQHCVARDIVNLIACE-GAERVERHEVFGK 465
G3825_Le (498)  IDVT---------------LLRDMKERINVEQHCLARDIVNVIACE-GKERVERHELLGK 499
G852 _At (499)  LDMT---------------LPRESQERMNVERQCLARDIVNIVACE-GEERIERYEAAGK 533
G3819_Os (500)  LDAA---------------LPRYDARRARVEQFHFGAEIRNVVGCE-GAARVERHERADQ 472
G1767_At (501)  WEES---------------FPRTSNERLMLER-AAGRAIVDLVACE-PSDSTERRETARK 467
                                                GE    .  :
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FIG. 19P

SEQ ID NOs: added

```
G3810_Gm (212)  WFQRFDLAGFGNVPLSYFGMVQARRFLQSYGCEG-YRMRDENG--CVLICWEDRPMYSIS 449
G3811_Gm (214)  WIQRLDLSGFANVPISYYGMLQGRRFLQTYGCEG-YKMREECG--RVMICWQERSLFSIT 440
G3824_Le (220)  WFQRFDTSGFGNVPLSYYAMLQARRLLQSYSCEG-YKIKEDNG--CVVICWQDRPLFSVS 379
G922 _At   (4)  WSQRIDLAGFGNVPLSYYAMLQARRLLQGCGFDG-YRIKEESG--CAVICWQDRPLYSVS 476
G3812_Gm (479)  WIRRLEMAGFEKVPLSYNGRLEAKNLLQRYSNK--YKFREEND--CLLVCWSDRPLFSRA 437
G3814_Os (218)  WAARMEAAGMERVGLSYSGAMEARKLLQSCGWAGPYEVRHDAGGHGFFFCWHKRPLYAVT 478
G3813_Os (216)  WARRLEGAGFGRVPLSYYALLQARRVAQGLGCDG-FKVREEKG--NFFLCWQDRALFSVS 434
G3827_Os (222)  ----LEGAGFGRVPLSYYALLQARRVAQGLGCDG-FKVREEKG--NFFLCWQDRALFSVS 363
G306 _At (480)  WREKMQQCGFKGISLAGNAATQATLLLGMFPSDG-YTLVDDNG--TLKLGWKDLSLLTAS 647
G3821_Ps (481)  WREKLQQCGFRGVSLAGNAATQASLLLGMFPSEG-YTLVEDNG--ILKLGWKDLCLLTAS 803
G3822_Zm (482)  WREKLAQSGFRAASLAGSAAAQASLLLGMFPSDG-YTLVEENG--ALKLGWKDLCLLTAS 657
G2738_At (483)  WRIRMKSAGFDPIHLGSSAFKQASMLLSLYATGDGYRVEENDG--CLMIGWQTRPLITTS 542
G3009_At (484)  WRKRMGSAGFDPVNLGSDAFKQASLLLALSGGGDGYRVEENDG--SLMLAWQTKPLIAAS 513
G307 _At (485)  WGNRFGSSGLAPAHLGSNAFKQASMLLSVFNSGQGYRVEESNG--CLMLGWHTRPLITTS 578
G308 _At (486)  WRNRFGSAGFAAAHIGSNAFKQASMLLALFNGGEGYRVEESDG--CLMLGWHTRPLIATS 525
G309 _At (487)  WRNRFGLGGFKPVSIGSNAYKQASMLLALYAGADGYNVEENEG--CLLLGWQTRPLIATS 503
G3816_Ta (488)  WRNRLGNAGFETVHLGSNAYKQASTLLALFAGGDGYKVEEKEG--CLTLGWHTRPLIATS 616
G3817_Os (489)  WRNRLGRAGFEPVHLGSNAYKQASTLLALFAGGDGYRVEEKEG--CLTLGWHTRPLIATS 618
G3818_Gm (490)  WRERLEKAGFKPLHLGSNAYKQASMLLTLFS-AEGYSVEENQG--CLTLGWHSRPLIAAS 488
G3010_At (491)  WQARLIRAGFRQLPLEKELMQNLKLKIENGYD-KNFDVDQNGN--WLLQGWKGRIVYASS 762
G3826_Le (492)  WQLRCVRAGFKQVPLDQEIVKIVRNKVRSEYH-RDFSVDEDGH--WMLQGWKGRVIYALS 654
G644 _At (493)  WHVRAMRSGLVQVPFDPSIMKTSLHKVHTFYH-KDFVIDQDNR--WLLQGWKGRTVMALS 710
G3823_Os (494)  WQMRILRAGFKQRPVNQAILNRSVHYKE-FYH-EDFVIDEDSG--WLLQGWKGRIIQALS 623
G3820_Os (495)  WQARCLKAGFKQLPVDPATLKEIINMKKGIYH-EDFVADEDGA--WLLQGWKGRVIYAIS 725
G1768_At (496)  WKSRFSMAGFEPYPLS-SIISATIRALLRD-YSNGYAIEERDG--ALYLGWMDRILVSSC 410
G3815_Os (497)  WKARLTMAGFRPYPLS-SVVNSTIKTLLHT-YNSFYRLEERDG--VLYLGWKNRVLVVSS 521
G3825_Le (498)  WKSRFMMAGFQQYPLS-SYVNSVIKDLMKR-YSEHYTLVEKDG--AMLLGWKERNLVSAS 555
G852 _At (499)  WRARMMMAGFNPKPMS-AKVTNNIQNLIKQQYCNKYKLKEEMG--ELHFCWEEKSLIVAS 590
G3819_Os (500)  WRRRMSRAGFQSVPIKMAAKAR--EWLDENAGGGGYTVAEEKG--CLVLGWKGKPVIAAS 528
G1767_At (501)  WSRRMRNSGFGAVGYSDEVADDVRALLRRYKEGVWSMVQCPDAA-GIFLCWRDQPVVWAS 526
                      *:     SY      RR Q                    C*     :
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FIG. 19Q

SEQ ID NOs: added

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G3810_Gm (212)  AWRSRK------------------------------------------------------ 455
G3811_Gm (214)  AWRPRK------------------------------------------------------ 446
G3824_Le (220)  SWRCRK------------------------------------------------------ 385
G922 _At   (4)  AWRCRK------------------------------------------------------ 482
G3812_Gm (479)  EF---------------------------------------------------------- 439
G3814_Os (218)  AWRPAASRRGHTLH------GRRSEGTRESVPWPPR---------------------- 508
G3813_Os (216)  AWRGRRFD--------------------------------------------------- 442
G3827_Os (222)  AWRGRRFAALLPLPPSTPLPCSRVIATLLSSPPPPCSPLHPYCPERRERMKGEKKGKRE- 422
G306 _At (480)  AWTPRS------------------------------------------------------ 653
G3821_Ps (481)  AWRPPYHTNTIIPHHN------------------------------------------- 819
G3822_Zm (482)  AWRPIQVPPCR------------------------------------------------- 668
G2738_At (483)  AWKLA-------------------------------------------------------- 547
G3009_At (484)  AWKLAAELRR--------------------------------------------------- 523
G307 _At (485)  AWKLSTAAH---------------------------------------------------- 587
G308 _At (486)  AWKLSTN------------------------------------------------------ 532
G309 _At (487)  AWRINRVE----------------------------------------------------- 511
G3816_Ta (488)  AWRLAGP------------------------------------------------------ 623
G3817_Os (489)  AWRVAAA------------------------------------------------------ 625
G3818_Gm (490)  AWQAAPMQDRETLRFEQ-------------------------------------------- 505
G3010_At (491)  LWVP----------------SSS-------------------------------------- 769
G3826_Le (492)  CWKP----------------TKQSVKLV--------------------------------- 666
G644 _At (493)  VWKP----------------ESKA------------------------------------ 718
G3823_Os (494)  TWKV----------------ET--------------------------------------- 629
G3820_Os (495)  TWKP----------------NESYLDQ------------------------------- 736
G1768_At (496)  AWK----------------------------------------------------------- 413
G3815_Os (497)  AWC----------------------------------------------------------- 524
G3825_Le (498)  AWF----------------------------------------------------------- 558
G852 _At (499)  AWR----------------------------------------------------------- 593
G3819_Os (500)  CWKC---------------------------------------------------------- 532
G1767_At (501)  AWRPT--------------------------------------------------------- 531
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FIG. 19R

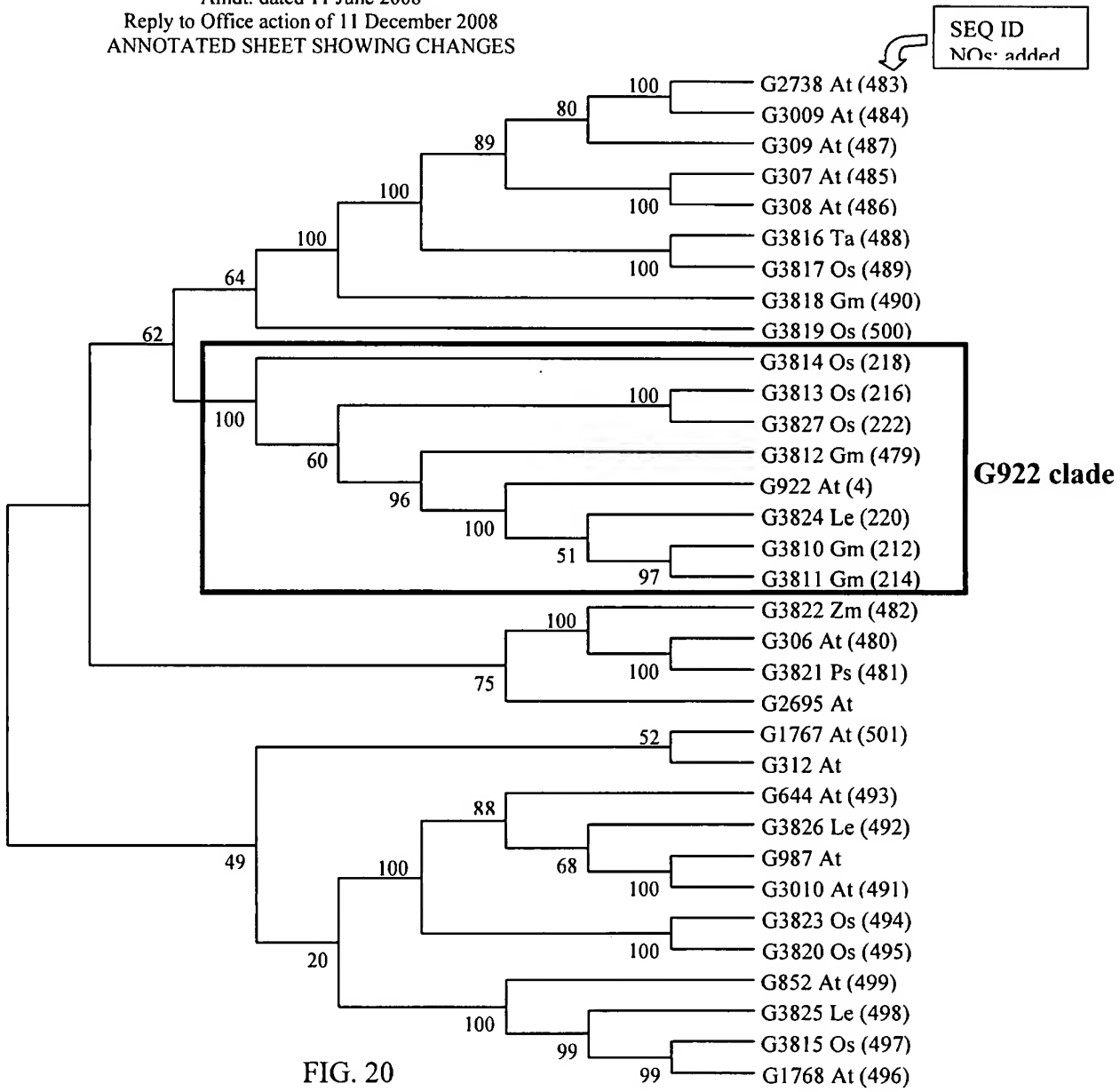

SEQ ID NOs: added
G2738 At (483)
G3009 At (484)
G309 At (487)
G307 At (485)
G308 At (486)
G3816 Ta (488)
G3817 Os (489)
G3818 Gm (490)
G3819 Os (500)
G3814 Os (218)
G3813 Os (216)
G3827 Os (222)
G3812 Gm (479)
G922 At (4)
G3824 Le (220)
G3810 Gm (212)
G3811 Gm (214)
G922 clade
G3822 Zm (482)
G306 At (480)
G3821 Ps (481)
G2695 At
G1767 At (501)
G312 At
G644 At (493)
G3826 Le (492)
G987 At
G3010 At (491)
G3823 Os (494)
G3820 Os (495)
G852 At (499)
G3825 Le (498)
G3815 Os (497)
G1768 At (496)

FIG. 20

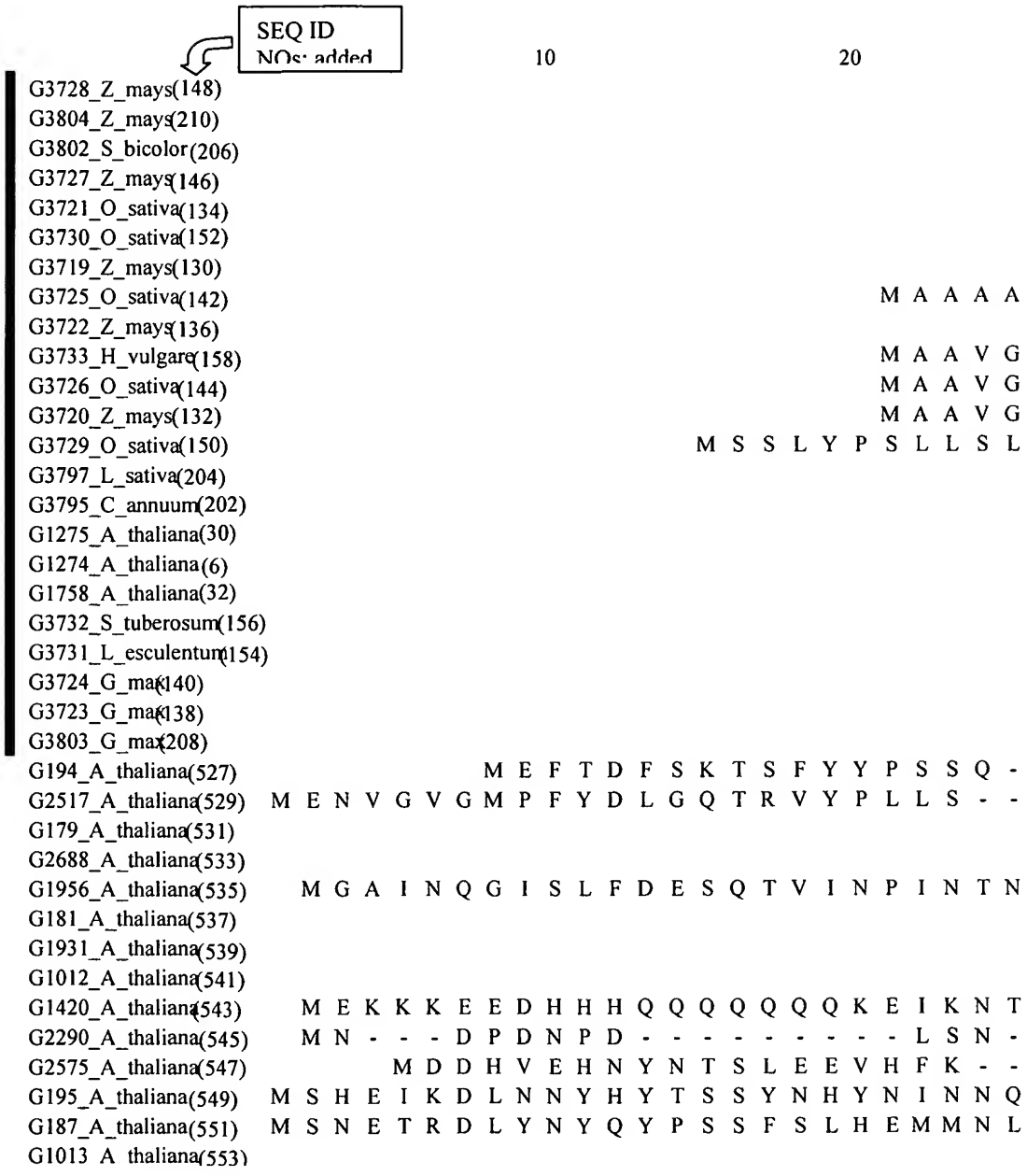
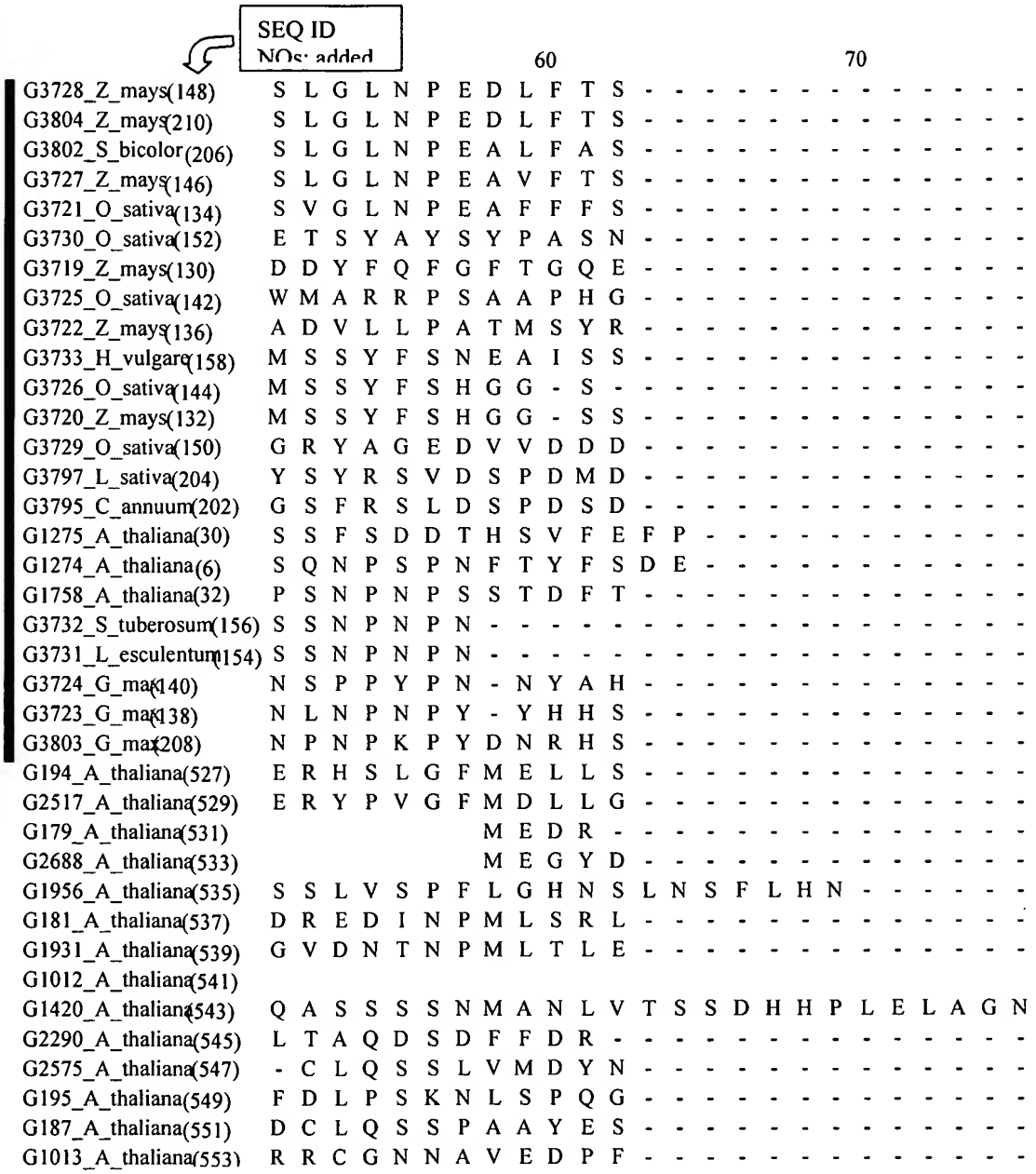

SEQ ID NOs: added
10
20
G3728_Z_mays(148)
G3804_Z_mays(210)
G3802_S_bicolor(206)
G3727_Z_mays(146)
G3721_O_sativa(134)
G3730_O_sativa(152)
G3719_Z_mays(130)
G3725_O_sativa(142) M A A A A
G3722_Z_mays(136)
G3733_H_vulgare(158) M A A V G
G3726_O_sativa(144) M A A V G
G3720_Z_mays(132) M A A V G
G3729_O_sativa(150) M S S L Y P S L L S L
G3797_L_sativa(204)
G3795_C_annuum(202)
G1275_A_thaliana(30)
G1274_A_thaliana(6)
G1758_A_thaliana(32)
G3732_S_tuberosum(156)
G3731_L_esculentum(154)
G3724_G_max(140)
G3723_G_max(138)
G3803_G_max(208)
G194_A_thaliana(527) M E F T D F S K T S F Y Y P S S Q -
G2517_A_thaliana(529) M E N V G V G M P F Y D L G Q T R V Y P L L S - -
G179_A_thaliana(531)
G2688_A_thaliana(533)
G1956_A_thaliana(535) M G A I N Q G I S L F D E S Q T V I N P I N T N
G181_A_thaliana(537)
G1931_A_thaliana(539)
G1012_A_thaliana(541)
G1420_A_thaliana(543) M E K K K E E D H H H Q Q Q Q Q Q Q K E I K N T
G2290_A_thaliana(545) M N - - - D P D N P D - - - - - - - - - L S N -
G2575_A_thaliana(547) M D D H V E H N Y N T S L E E V H F K - -
G195_A_thaliana(549) M S H E I K D L N N Y H Y T S S Y N H Y N I N N Q
G187_A_thaliana(551) M S N E T R D L Y N Y Q Y P S S F S L H E M M N L
G1013_A_thaliana(553)

FIG. 22A

	40	50
G3728_Z_mays(148)		M A T
G3804_Z_mays(210)		M A T
G3802_S_bicolor(206)		M Q M A A
G3727_Z_mays(146)		M A A
G3721_O_sativa(134)		M A A
G3730_O_sativa(152)	M A A S L G L C H	
G3719_Z_mays(130)		M A
G3725_O_sativa(142)	A G A S T P F N F C R H G S H A E Y D A V F S G S	
G3722_Z_mays(136)	M H M A L S S R S S F A	
G3733_H_vulgare(158)	A A P V L Y Q Q Q - - - - A Q A V G D A C F F S S	
G3726_O_sativa(144)	A H A A V Y H H P V S G L S A P A G D A A Y - - S	
G3720_Z_mays(132)	A H P V L Y H H P - - - - - A P A G D A S - - - S	
G3729_O_sativa(150)	S - - - - - - - - - - - - - E S P A E Y R Q V G G	
G3797_L_sativa(204)	M N Y Y D H Q M S K A	
G3795_C_annuum(202)		M L D
G1275_A_thaliana(30)	M N D A D T N L G	
G1274_A_thaliana(6)		M N I
G1758_A_thaliana(32)		M N Y
G3732_S_tuberosum(156)	M E N F P Y S	
G3731_L_esculentum(154)	M E N F P Y S	
G3724_G_max(140)	M D F Y F G	
G3723_G_max(138)	M D Y Y F G	
G3803_G_max(208)	M D Y Y F G	
G194_A_thaliana(527)	- - - - - - - - - - - - - - S V W D F G D L A A A	
G2517_A_thaliana(529)	- - - - - - - - - - - - - - - - - D F H D L S A -	
G179_A_thaliana(531)		
G2688_A_thaliana(533)		
G1956_A_thaliana(535)	H L G F F F S F P S H S T L S S S S S S S S S S P	
G181_A_thaliana(537)		M.
G1931_A_thaliana(539)		M E
G1012_A_thaliana(541)		
G1420_A_thaliana(543)	E T K I - - - - - - - - E Q E Q E Q E Q K Q E I S	
G2290_A_thaliana(545)	- - - - - - - - - - - - - - - - D D S A W R E L T	
G2575_A_thaliana(547)	- - - - - - - - - - - - - - - - S L S D - - - -	
G195_A_thaliana(549)	N M I N L P Y V S G P S A Y N A N M I S S S Q V G	
G187_A_thaliana(551)	P T S N P S S Y G N L P S Q N G F N P S T Y S F T	
G1013_A_thaliana(553)	M E E E G Y Q W A	

FIG. 22B


SEQ ID NOs: added
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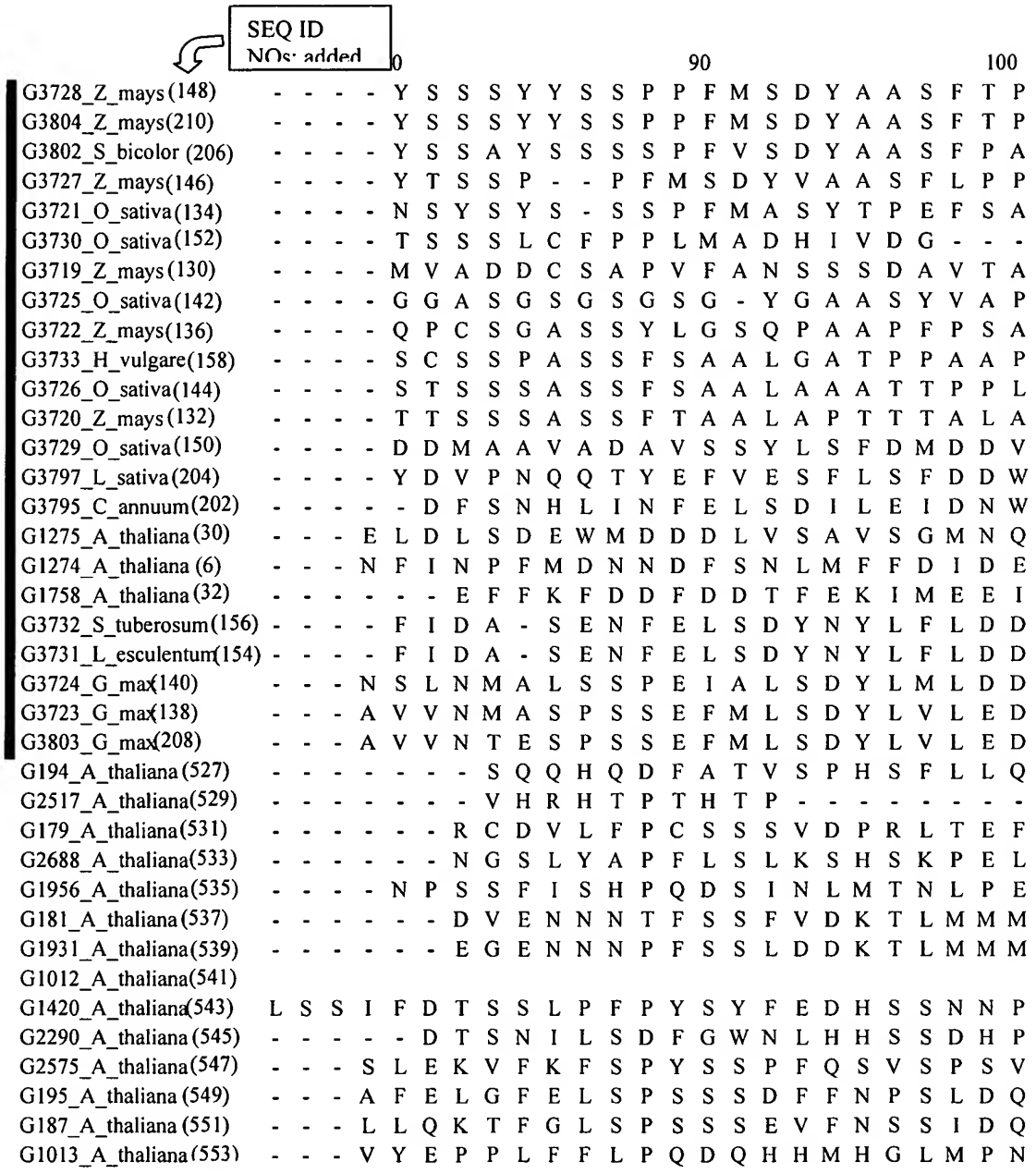
70
G3728_Z_mays(148) S L G L N P E D L F T S
G3804_Z_mays(210) S L G L N P E D L F T S
G3802_S_bicolor(206) S L G L N P E A L F A S
G3727_Z_mays(146) S L G L N P E A V F T S
G3721_O_sativa(134) S V G L N P E A F F F S
G3730_O_sativa(152) E T S Y A Y S Y P A S N
G3719_Z_mays(130) D D Y F Q F G F T G Q E
G3725_O_sativa(142) W M A R R P S A A P H G
G3722_Z_mays(136) A D V L L P A T M S Y R
G3733_H_vulgare(158) M S S Y F S N E A I S S
G3726_O_sativa(144) M S S Y F S H G G - S
G3720_Z_mays(132) M S S Y F S H G G - S S
G3729_O_sativa(150) G R Y A G E D V V D D D
G3797_L_sativa(204) Y S Y R S V D S P D M D
G3795_C_annuum(202) G S F R S L D S P D S D
G1275_A_thaliana(30) S S F S D D T H S V F E F P
G1274_A_thaliana(6) S Q N P S P N F T Y F S D E
G1758_A_thaliana(32) P S N P N P S S T D F T
G3732_S_tuberosum(156) S S N P N P N
G3731_L_esculentum(154) S S N P N P N
G3724_G_max(140) N S P P Y P N - N Y A H
G3723_G_max(138) N L N P N P Y - Y H H S
G3803_G_max(208) N P N P K P Y D N R H S
G194_A_thaliana(527) E R H S L G F M E L L S
G2517_A_thaliana(529) E R Y P V G F M D L L G
G179_A_thaliana(531) M E D R
G2688_A_thaliana(533) M E G Y D
G1956_A_thaliana(535) S S L V S P F L G H N S L N S F L H N
G181_A_thaliana(537) D R E D I N P M L S R L
G1931_A_thaliana(539) G V D N T N P M L T L E
G1012_A_thaliana(541)
G1420_A_thaliana(543) Q A S S S S N M A N L V T S S D H H P L E L A G N
G2290_A_thaliana(545) L T A Q D S D F F D R
G2575_A_thaliana(547) - C L Q S S L V M D Y N
G195_A_thaliana(549) F D L P S K N L S P Q G
G187_A_thaliana(551) D C L Q S S P A A Y E S
G1013_A_thaliana(553) R R C G N N A V E D P F

FIG. 22C


SEQ ID NOs: added
90
100
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G3804_Z_mays(210) - - - - Y S S S Y Y S S P P F M S D Y A A S F T P
G3802_S_bicolor (206) - - - - Y S S A Y S S S S P F V S D Y A A S F P A
G3727_Z_mays(146) - - - - Y T S S P - - P F M S D Y V A A S F L P P
G3721_O_sativa(134) - - - - N S Y S Y S - S S P F M A S Y T P E F S A
G3730_O_sativa(152) - - - - T S S S L C F P P L M A D H I V D G - - -
G3719_Z_mays (130) - - - - M V A D D C S A P V F A N S S S D A V T A
G3725_O_sativa(142) - - - - G G A S G S G S G S G - Y G A A S Y V A P
G3722_Z_mays(136) - - - - Q P C S G A S S Y L G S Q P A A P F P S A
G3733_H_vulgare(158) - - - - S C S S P A S S F S A A L G A T P P A A P
G3726_O_sativa(144) - - - - S T S S S A S S F S A A L A A A T T P P L
G3720_Z_mays (132) - - - - T T S S S A S S F T A A L A P T T T A L A
G3729_O_sativa(150) - - - - D D M A A V A D A V S S Y L S F D M D D V
G3797_L_sativa(204) - - - - Y D V P N Q Q T Y E F V E S F L S F D D W
G3795_C_annuum(202) - - - - - D F S N H L I N F E L S D I L E I D N W
G1275_A_thaliana (30) - - - E L D L S D E W M D D D L V S A V S G M N Q
G1274_A_thaliana (6) - - - N F I N P F M D N N D F S N L M F F D I D E
G1758_A_thaliana (32) - - - - - - - E F F K F D D F D D T F E K I M E E I
G3732_S_tuberosum(156) - - - - F I D A - S E N F E L S D Y N Y L F L D D
G3731_L_esculentum(154) - - - - F I D A - S E N F E L S D Y N Y L F L D D
G3724_G_max(140) - - - N S L N M A L S S P E I A L S D Y L M L D D
G3723_G_max(138) - - - A V V N M A S P S S E F M L S D Y L V L E D
G3803_G_max(208) - - - A V V N T E S P S S E F M L S D Y L V L E D
G194_A_thaliana (527) - - - - - - - - S Q Q H Q D F A T V S P H S F L L Q
G2517_A_thaliana(529) - - - - - - - - V H R H T P T H T P - - - - - - - -
G179_A_thaliana(531) - - - - - - - R C D V L F P C S S S V D P R L T E F
G2688_A_thaliana(533) - - - - - - - N G S L Y A P F L S L K S H S K P E L
G1956_A_thaliana(535) - - - - N P S S F I S H P Q D S I N L M T N L P E
G181_A_thaliana (537) - - - - - - - D V E N N N T F S S F V D K T L M M M
G1931_A_thaliana(539) - - - - - - - E G E N N N P F S S L D D K T L M M M
G1012_A_thaliana(541)
G1420_A_thaliana(543) L S S I F D T S S L P F P Y S Y F E D H S S N N P
G2290_A_thaliana (545) - - - - - D T S N I L S D F G W N L H H S S D H P
G2575_A_thaliana(547) - - - S L E K V F K F S P Y S S P F Q S V S P S V
G195_A_thaliana (549) - - - A F E L G F E L S P S S S D F F N P S L D Q
G187_A_thaliana (551) - - - L L Q K T F G L S P S S S E V F N S S I D Q
G1013_A_thaliana(553) - - - V Y E P P L F F L P Q D Q H H M H G L M P N

FIG. 22D

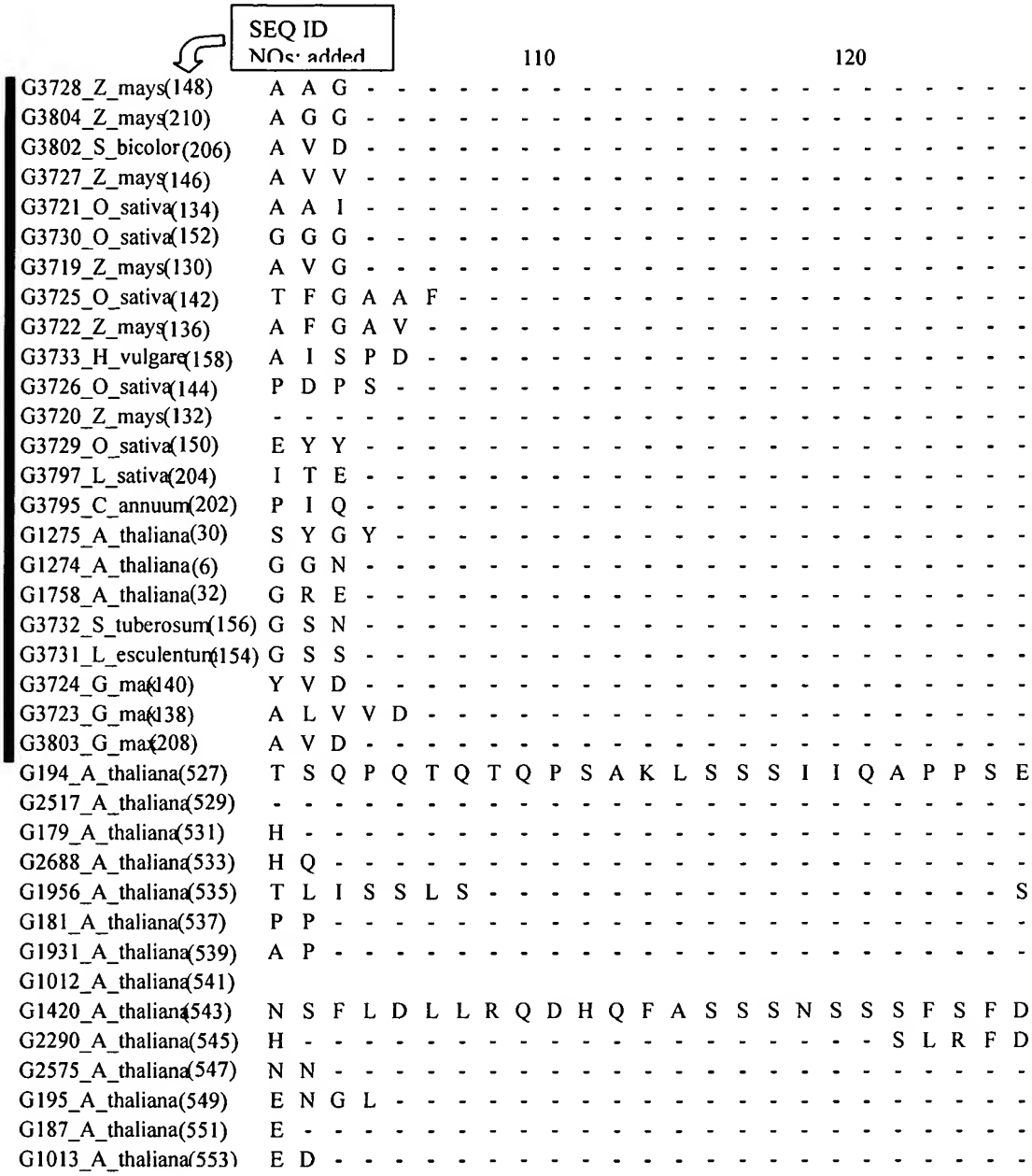
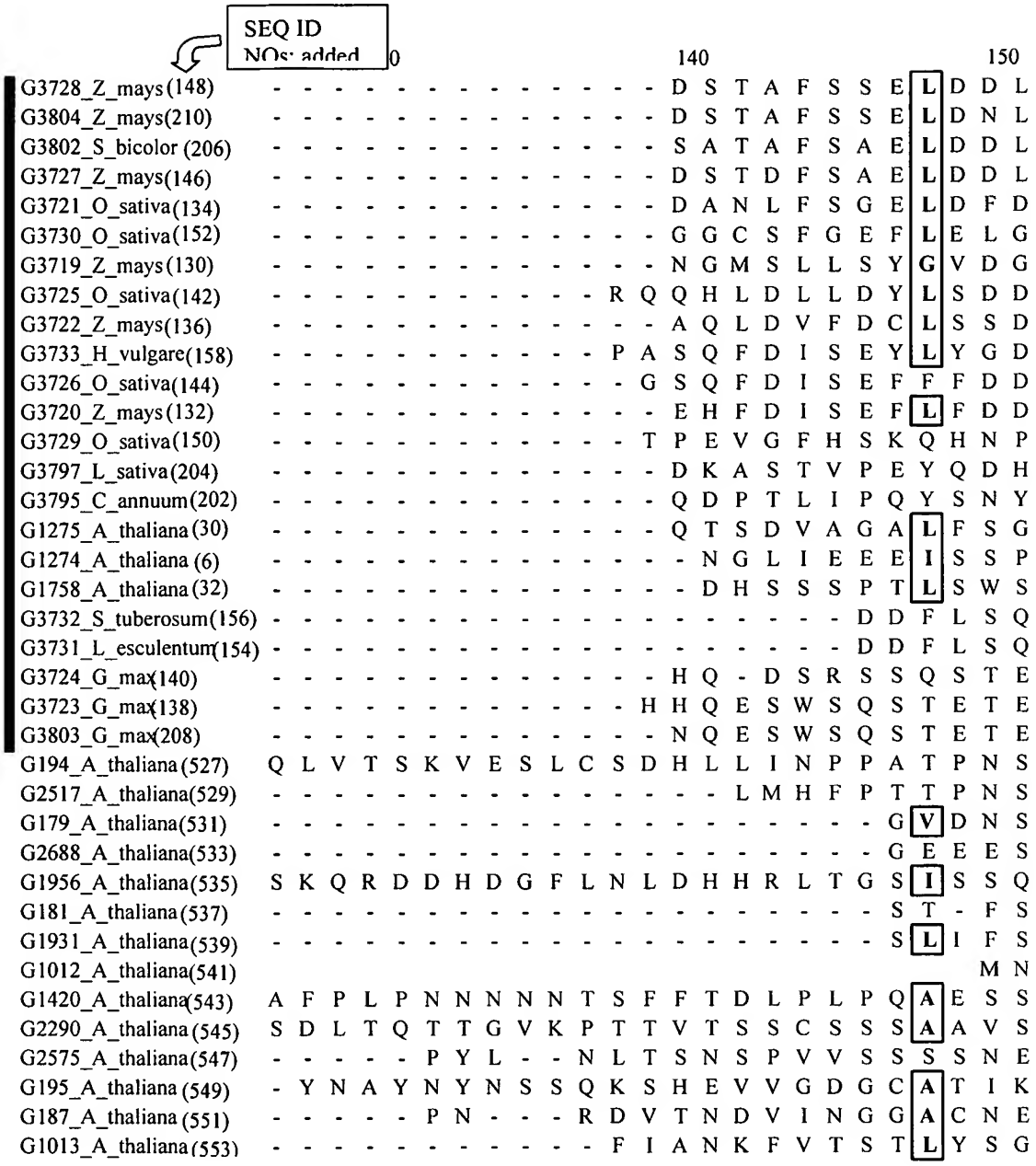

SEQ ID NOs: added
110
120
G3728_Z_mays(148) A A G -
G3804_Z_mays(210) A G G -
G3802_S_bicolor(206) A V D -
G3727_Z_mays(146) A V V -
G3721_O_sativa(134) A A I -
G3730_O_sativa(152) G G G -
G3719_Z_mays(130) A V G -
G3725_O_sativa(142) T F G A A F -
G3722_Z_mays(136) A F G A V -
G3733_H_vulgare(158) A I S P D -
G3726_O_sativa(144) P D P S -
G3720_Z_mays(132) -
G3729_O_sativa(150) E Y Y -
G3797_L_sativa(204) I T E -
G3795_C_annuum(202) P I Q -
G1275_A_thaliana(30) S Y G Y -
G1274_A_thaliana(6) G G N -
G1758_A_thaliana(32) G R E -
G3732_S_tuberosum(156) G S N -
G3731_L_esculentum(154) G S S -
G3724_G_max(140) Y V D -
G3723_G_max(138) A L V V D -
G3803_G_max(208) A V D -
G194_A_thaliana(527) T S Q P Q T Q T Q P S A K L S S S I I Q A P P S E
G2517_A_thaliana(529) -
G179_A_thaliana(531) H -
G2688_A_thaliana(533) H Q -
G1956_A_thaliana(535) T L I S S L S - - - - - - - - - - - - - - - - - - - S
G181_A_thaliana(537) P P -
G1931_A_thaliana(539) A P -
G1012_A_thaliana(541)
G1420_A_thaliana(543) N S F L D L L R Q D H Q F A S S S N S S S F S F D
G2290_A_thaliana(545) H - S L R F D
G2575_A_thaliana(547) N N -
G195_A_thaliana(549) E N G L -
G187_A_thaliana(551) E -
G1013_A_thaliana(553) E D -

FIG. 22E


SEQ ID NOs: added
0
140
150
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G3804_Z_mays(210) - - - - - - - - - - - - - - - D S T A F S S E L D N L
G3802_S_bicolor (206) - - - - - - - - - - - - - - - S A T A F S A E L D D L
G3727_Z_mays(146) - - - - - - - - - - - - - - - D S T D F S A E L D D L
G3721_O_sativa(134) - - - - - - - - - - - - - - - D A N L F S G E L D F D
G3730_O_sativa(152) - - - - - - - - - - - - - - - G G C S F G E F L E L G
G3719_Z_mays(130) - - - - - - - - - - - - - - - N G M S L L S Y G V D G
G3725_O_sativa(142) - - - - - - - - - - - - R Q Q H L D L L D Y L S D D
G3722_Z_mays(136) - - - - - - - - - - - - - - - A Q L D V F D C L S S D
G3733_H_vulgare(158) - - - - - - - - - - - - P A S Q F D I S E Y L Y G D
G3726_O_sativa(144) - - - - - - - - - - - - - - G S Q F D I S E F F F D D
G3720_Z_mays(132) - - - - - - - - - - - - - - - E H F D I S E F L F D D
G3729_O_sativa(150) - - - - - - - - - - - - - - T P E V G F H S K Q H N P
G3797_L_sativa(204) - - - - - - - - - - - - - - - D K A S T V P E Y Q D H
G3795_C_annuum(202) - - - - - - - - - - - - - - - Q D P T L I P Q Y S N Y
G1275_A_thaliana(30) - - - - - - - - - - - - - - - Q T S D V A G A L F S G
G1274_A_thaliana (6) - - - - - - - - - - - - - - - - N G L I E E E I S S P
G1758_A_thaliana(32) - - - - - - - - - - - - - - - - D H S S S P T L S W S
G3732_S_tuberosum(156) - D D F L S Q
G3731_L_esculentum(154) - D D F L S Q
G3724_G_max(140) - - - - - - - - - - - - - - - H Q - D S R S S Q S T E
G3723_G_max(138) - - - - - - - - - - - - - - - H H Q E S W S Q S T E T E
G3803_G_max(208) - - - - - - - - - - - - - - - N Q E S W S Q S T E T E
G194_A_thaliana(527) Q L V T S K V E S L C S D H L L I N P P A T P N S
G2517_A_thaliana(529) - - - - - - - - - - - - - - - - - L M H F P T T P N S
G179_A_thaliana(531) - G V D N S
G2688_A_thaliana(533) - G E E E S
G1956_A_thaliana(535) S K Q R D D H D G F L N L D H H R L T G S I S S Q
G181_A_thaliana(537) - S T - F S
G1931_A_thaliana(539) - S L I F S
G1012_A_thaliana(541) M N
G1420_A_thaliana(543) A F P L P N N N N N T S F F T D L P L P Q A E S S
G2290_A_thaliana(545) S D L T Q T T G V K P T T V T S S C S S S A A V S
G2575_A_thaliana(547) - - - - - P Y L - - N L T S N S P V V S S S S N E
G195_A_thaliana (549) - Y N A Y N Y N S S Q K S H E V V G D G C A T I K
G187_A_thaliana (551) - - - - - P N - - - R D V T N D V I N G G A C N E
G1013_A_thaliana(553) - - - - - - - - - - - F I A N K F V T S T L Y S G

FIG. 22F

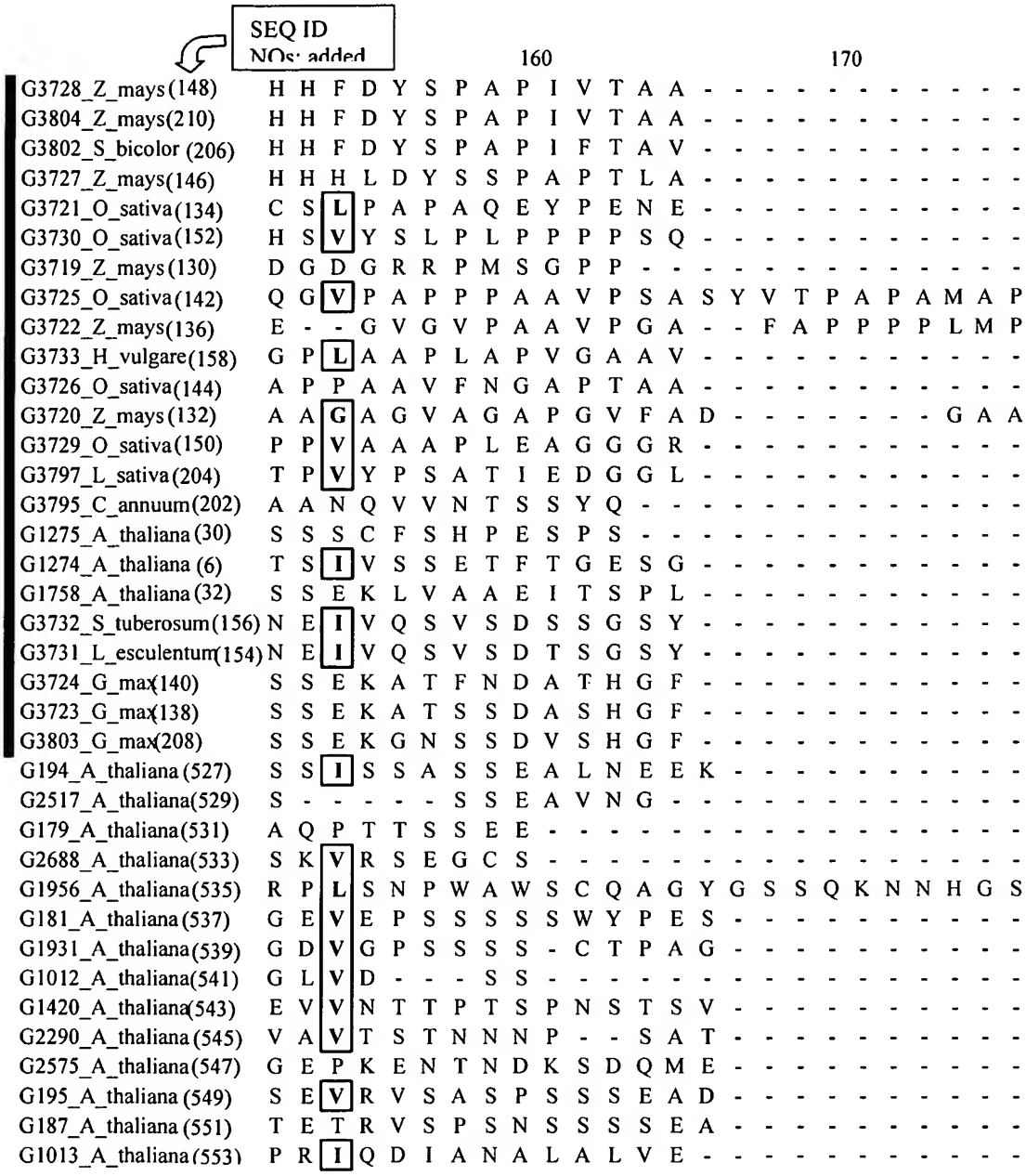
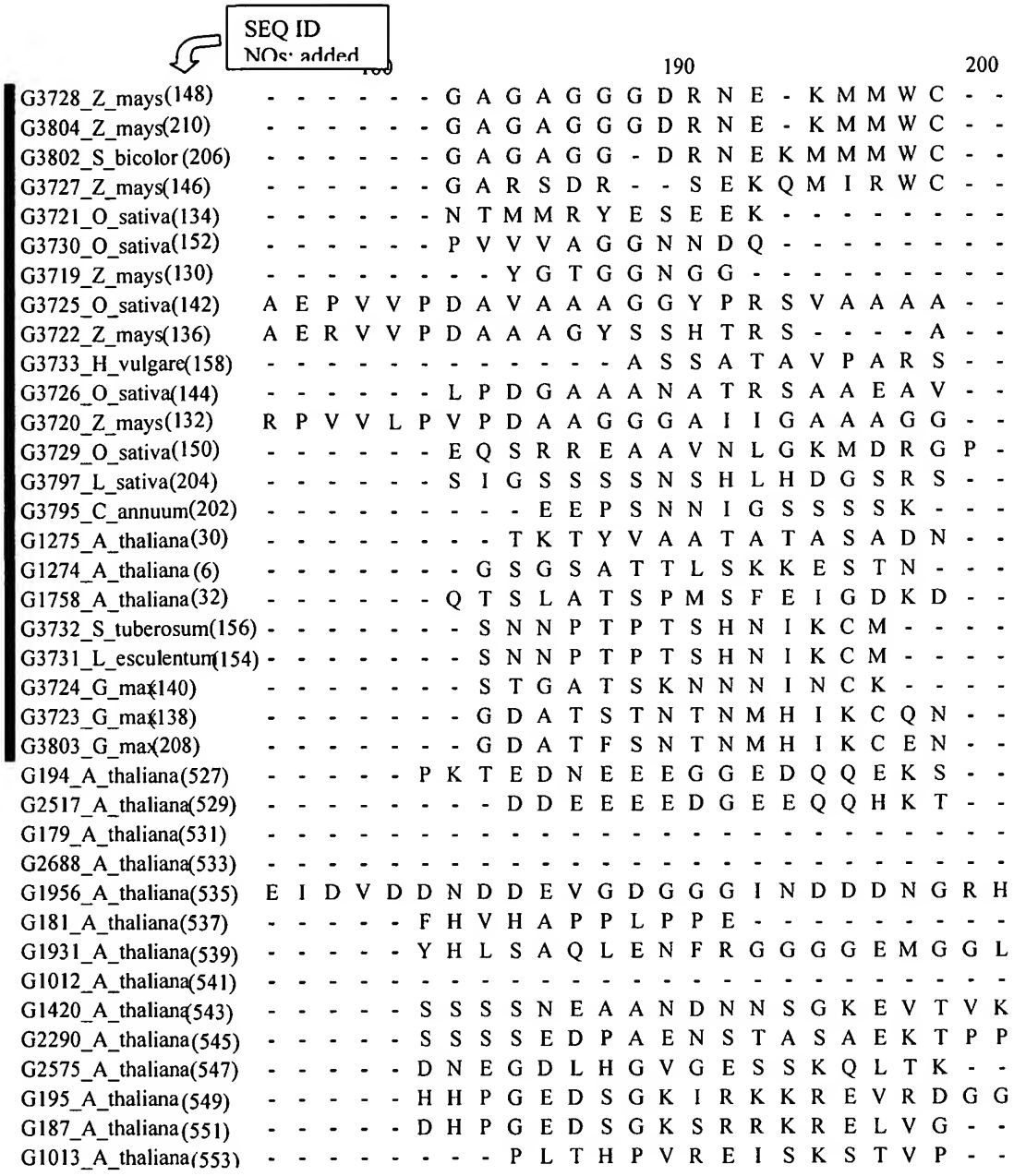

SEQ ID NOs: added
160
170
G3728_Z_mays(148) H H F D Y S P A P I V T A A - - - - - - - - - - -
G3804_Z_mays(210) H H F D Y S P A P I V T A A - - - - - - - - - - -
G3802_S_bicolor (206) H H F D Y S P A P I F T A V - - - - - - - - - -
G3727_Z_mays(146) H H H L D Y S S P A P T L A - - - - - - - - - - -
G3721_O_sativa(134) C S L P A P A Q E Y P E N E - - - - - - - - - - -
G3730_O_sativa(152) H S V Y S L P L P P P P S Q - - - - - - - - - - -
G3719_Z_mays(130) D G D G R R P M S G P P - - - - - - - - - - - -
G3725_O_sativa(142) Q G V P A P P P A A V P S A S Y V T P A P A M A P
G3722_Z_mays(136) E - - G V G V P A A V P G A - - F A P P P P L M P
G3733_H_vulgare(158) G P L A A P L A P V G A A V - - - - - - - - - - -
G3726_O_sativa(144) A P P A A V F N G A P T A A - - - - - - - - - - -
G3720_Z_mays(132) A A G A G V A G A P G V F A D - - - - - - - G A A
G3729_O_sativa(150) P P V A A A P L E A G G G R - - - - - - - - - - -
G3797_L_sativa(204) T P V Y P S A T I E D G G L - - - - - - - - - - -
G3795_C_annuum(202) A A N Q V V N T S S Y Q - - - - - - - - - - - -
G1275_A_thaliana(30) S S S C F S H P E S P S - - - - - - - - - - - -
G1274_A_thaliana (6) T S I V S S E T F T G E S G - - - - - - - - - - -
G1758_A_thaliana(32) S S E K L V A A E I T S P L - - - - - - - - - - -
G3732_S_tuberosum(156) N E I V Q S V S D S S G S Y - - - - - - - - - - -
G3731_L_esculentum(154) N E I V Q S V S D T S G S Y - - - - - - - - - - -
G3724_G_max(140) S S E K A T F N D A T H G F - - - - - - - - - - - -
G3723_G_max(138) S S E K A T S S D A S H G F - - - - - - - - - - - -
G3803_G_max(208) S S E K G N S S D V S H G F - - - - - - - - - - - -
G194_A_thaliana(527) S S I S S A S S E A L N E E K - - - - - - - - - -
G2517_A_thaliana(529) S - - - - - S S E A V N G - - - - - - - - - - -
G179_A_thaliana(531) A Q P T T S S E E - - - - - - - - - - - - - - -
G2688_A_thaliana(533) S K V R S E G C S - - - - - - - - - - - - - - -
G1956_A_thaliana(535) R P L S N P W A W S C Q A G Y G S S Q K N N H G S
G181_A_thaliana(537) G E V E P S S S S S W Y P E S - - - - - - - - - -
G1931_A_thaliana(539) G D V G P S S S S - C T P A G - - - - - - - - - -
G1012_A_thaliana(541) G L V D - - - S S - - - - - - - - - - - - - - -
G1420_A_thaliana(543) E V V N T T P T S P N S T S V - - - - - - - - - -
G2290_A_thaliana(545) V A V T S T N N N P - - S A T - - - - - - - - - -
G2575_A_thaliana(547) G E P K E N T N D K S D Q M E - - - - - - - - - -
G195_A_thaliana (549) S E V R V S A S P S S S E A D - - - - - - - - - -
G187_A_thaliana (551) T E T R V S P S N S S S S E A - - - - - - - - - -
G1013_A_thaliana(553) P R I Q D I A N A L A L V E - - - - - - - - - - -

FIG. 22G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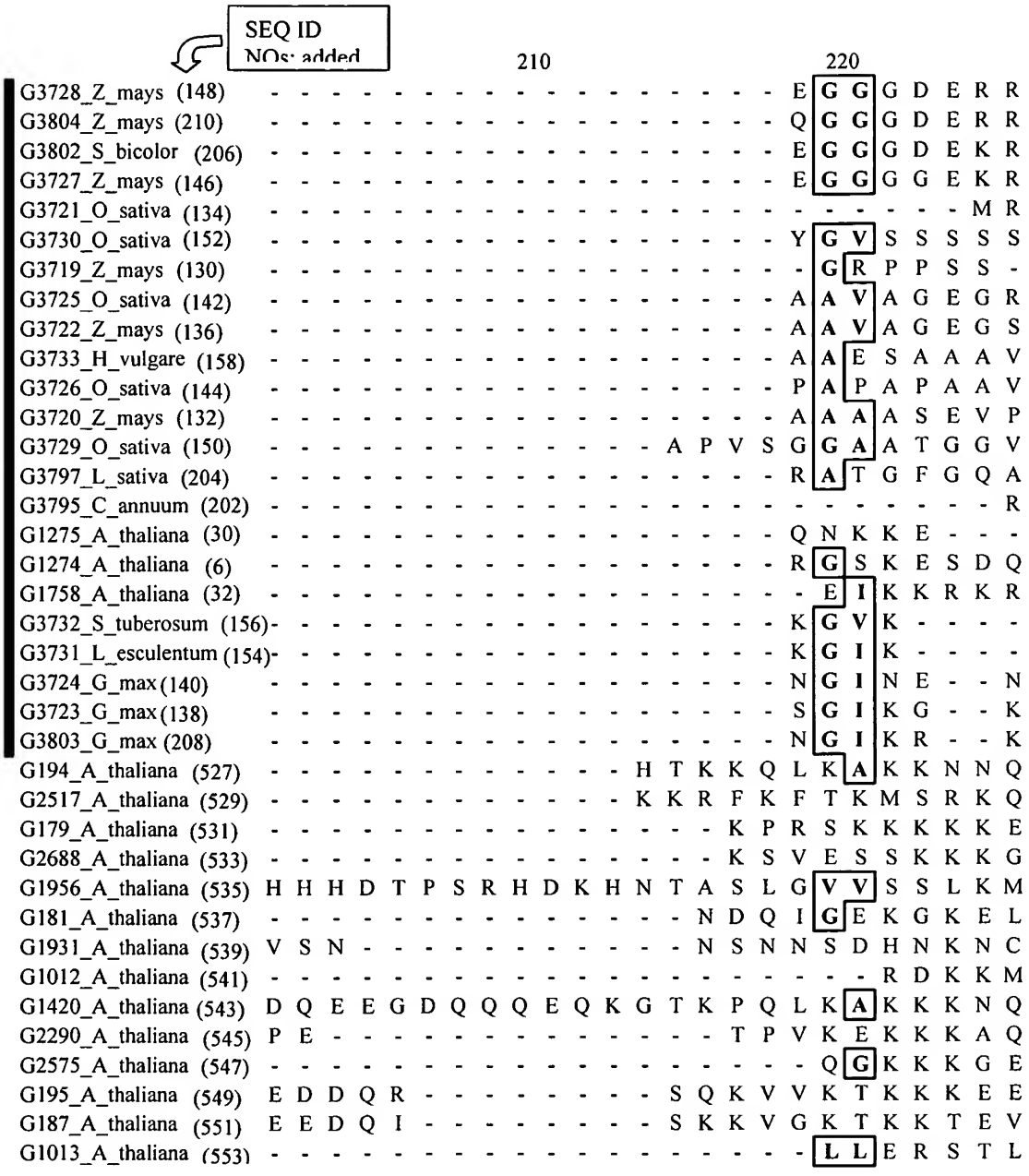
G3802_S_bicolor(206) - - - - - - - G A G A G G - D R N E K M M M W C - -
G3727_Z_mays(146) - - - - - - - G A R S D R - - S E K Q M I R W C - -
G3721_O_sativa(134) - - - - - - - N T M M R Y E S E E K - - - - - - - - -
G3730_O_sativa(152) - - - - - - - P V V V A G G N N D Q - - - - - - - - -
G3719_Z_mays(130) - - - - - - - - - Y G T G G N G G - - - - - - - - - -
G3725_O_sativa(142) A E P V V P D A V A A A G G Y P R S V A A A A - -
G3722_Z_mays(136) A E R V V P D A A A G Y S S H T R S - - - - A - -
G3733_H_vulgare(158) - - - - - - - - - - - - - A S S A T A V P A R S - -
G3726_O_sativa(144) - - - - - - - L P D G A A A N A T R S A A E A V - -
G3720_Z_mays(132) R P V V L P V P D A A G G G A I I G A A A G G - -
G3729_O_sativa(150) - - - - - - - E Q S R R E A A V N L G K M D R G P -
G3797_L_sativa(204) - - - - - - - S I G S S S S N S H L H D G S R S - -
G3795_C_annuum(202) - - - - - - - - - - E E P S N N I G S S S S K - - -
G1275_A_thaliana(30) - - - - - - - - - T K T Y V A A T A T A S A D N - -
G1274_A_thaliana(6) - - - - - - - - G S G S A T T L S K K E S T N - - -
G1758_A_thaliana(32) - - - - - - - Q T S L A T S P M S F E I G D K D - -
G3732_S_tuberosum(156) - - - - - - - - S N N P T P T S H N I K C M - - - -
G3731_L_esculentum(154) - - - - - - - - S N N P T P T S H N I K C M - - - -
G3724_G_max(140) - - - - - - - - S T G A T S K N N N I N C K - - - -
G3723_G_max(138) - - - - - - - - G D A T S T N T N M H I K C Q N - -
G3803_G_max(208) - - - - - - - - G D A T F S N T N M H I K C E N - -
G194_A_thaliana(527) - - - - - P K T E D N E E E G G E D Q Q E K S - -
G2517_A_thaliana(529) - - - - - - - - - D D E E E E D G E E Q Q H K T - -
G179_A_thaliana(531) -
G2688_A_thaliana(533) -
G1956_A_thaliana(535) E I D V D D N D D E V G D G G G I N D D D N G R H
G181_A_thaliana(537) - - - - - F H V H A P P L P P E - - - - - - - - -
G1931_A_thaliana(539) - - - - - Y H L S A Q L E N F R G G G G E M G G L
G1012_A_thaliana(541) -
G1420_A_thaliana(543) - - - - - S S S S N E A A N D N N S G K E V T V K
G2290_A_thaliana(545) - - - - - S S S S E D P A E N S T A S A E K T P P
G2575_A_thaliana(547) - - - - - D N E G D L H G V G E S S K Q L T K - -
G195_A_thaliana(549) - - - - - H H P G E D S G K I R K K R E V R D G G
G187_A_thaliana(551) - - - - - D H P G E D S G K S R R K R E L V G - -
G1013_A_thaliana(553) - - - - - - - - P L T H P V R E I S K S T V P - -

FIG. 22H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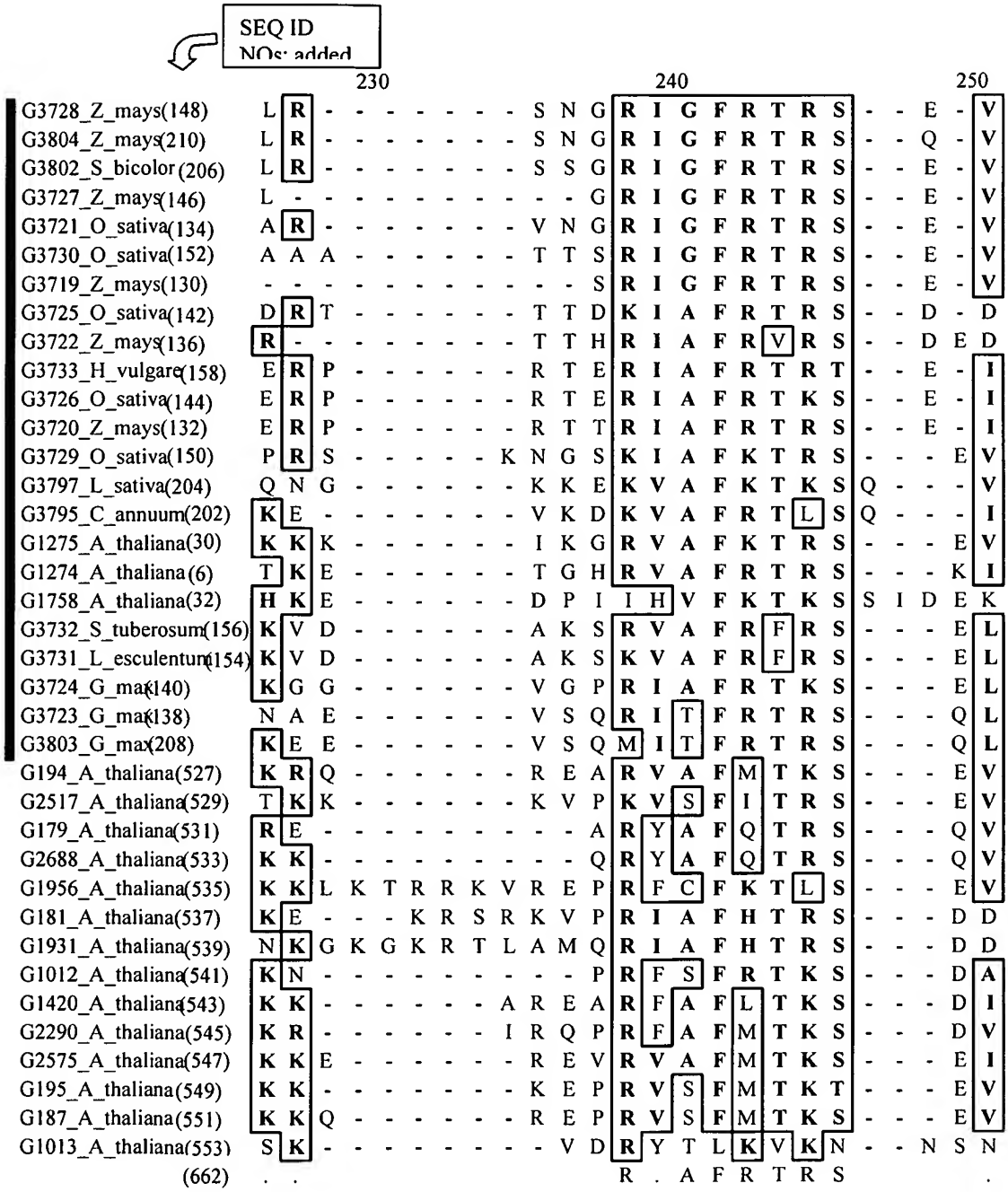
G3804_Z_mays (210)
G3802_S_bicolor (206)
G3727_Z_mays (146)
G3721_O_sativa (134)
G3730_O_sativa (152)
G3719_Z_mays (130)
G3725_O_sativa (142)
G3722_Z_mays (136)
G3733_H_vulgare (158)
G3726_O_sativa (144)
G3720_Z_mays (132)
G3729_O_sativa (150)
G3797_L_sativa (204)
G3795_C_annuum (202)
G1275_A_thaliana (30)
G1274_A_thaliana (6)
G1758_A_thaliana (32)
G3732_S_tuberosum (156)
G3731_L_esculentum (154)
G3724_G_max (140)
G3723_G_max (138)
G3803_G_max (208)
G194_A_thaliana (527)
G2517_A_thaliana (529)
G179_A_thaliana (531)
G2688_A_thaliana (533)
G1956_A_thaliana (535)
G181_A_thaliana (537)
G1931_A_thaliana (539)
G1012_A_thaliana (541)
G1420_A_thaliana (543)
G2290_A_thaliana (545)
G2575_A_thaliana (547)
G195_A_thaliana (549)
G187_A_thaliana (551)
G1013_A_thaliana (553)

FIG. 22I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G3804_Z_mays(210)
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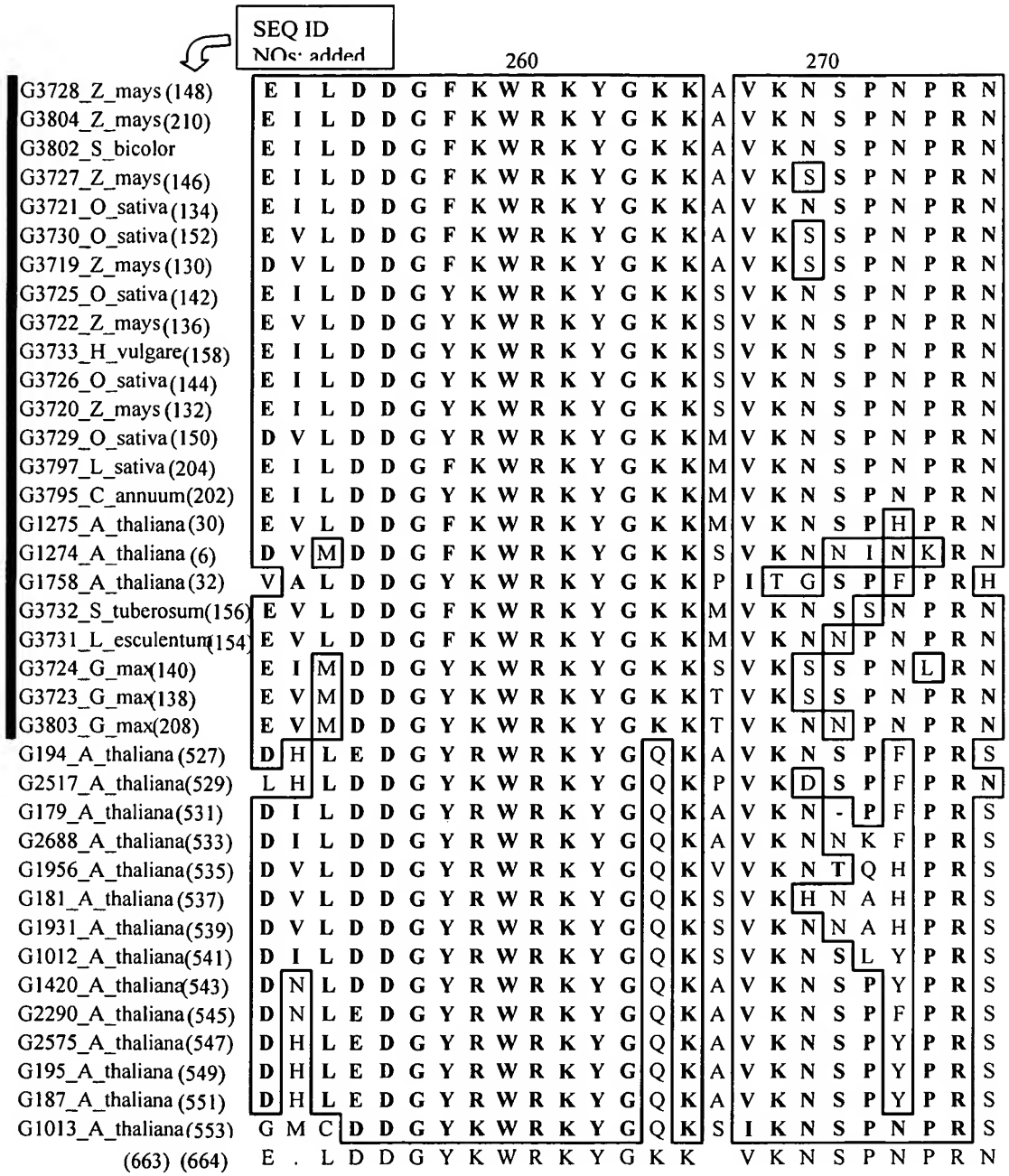
G3721_O_sativa(134)
G3730_O_sativa(152)
G3719_Z_mays(130)
G3725_O_sativa(142)
G3722_Z_mays(136)
G3733_H_vulgare(158)
G3726_O_sativa(144)
G3720_Z_mays(132)
G3729_O_sativa(150)
G3797_L_sativa(204)
G3795_C_annuum(202)
G1275_A_thaliana(30)
G1274_A_thaliana(6)
G1758_A_thaliana(32)
G3732_S_tuberosum(156)
G3731_L_esculentum(154)
G3724_G_max(140)
G3723_G_max(138)
G3803_G_max(208)
G194_A_thaliana(527)
G2517_A_thaliana(529)
G179_A_thaliana(531)
G2688_A_thaliana(533)
G1956_A_thaliana(535)
G181_A_thaliana(537)
G1931_A_thaliana(539)
G1012_A_thaliana(541)
G1420_A_thaliana(543)
G2290_A_thaliana(545)
G2575_A_thaliana(547)
G195_A_thaliana(549)
G187_A_thaliana(551)
G1013_A_thaliana(553)
(662)

FIG. 22J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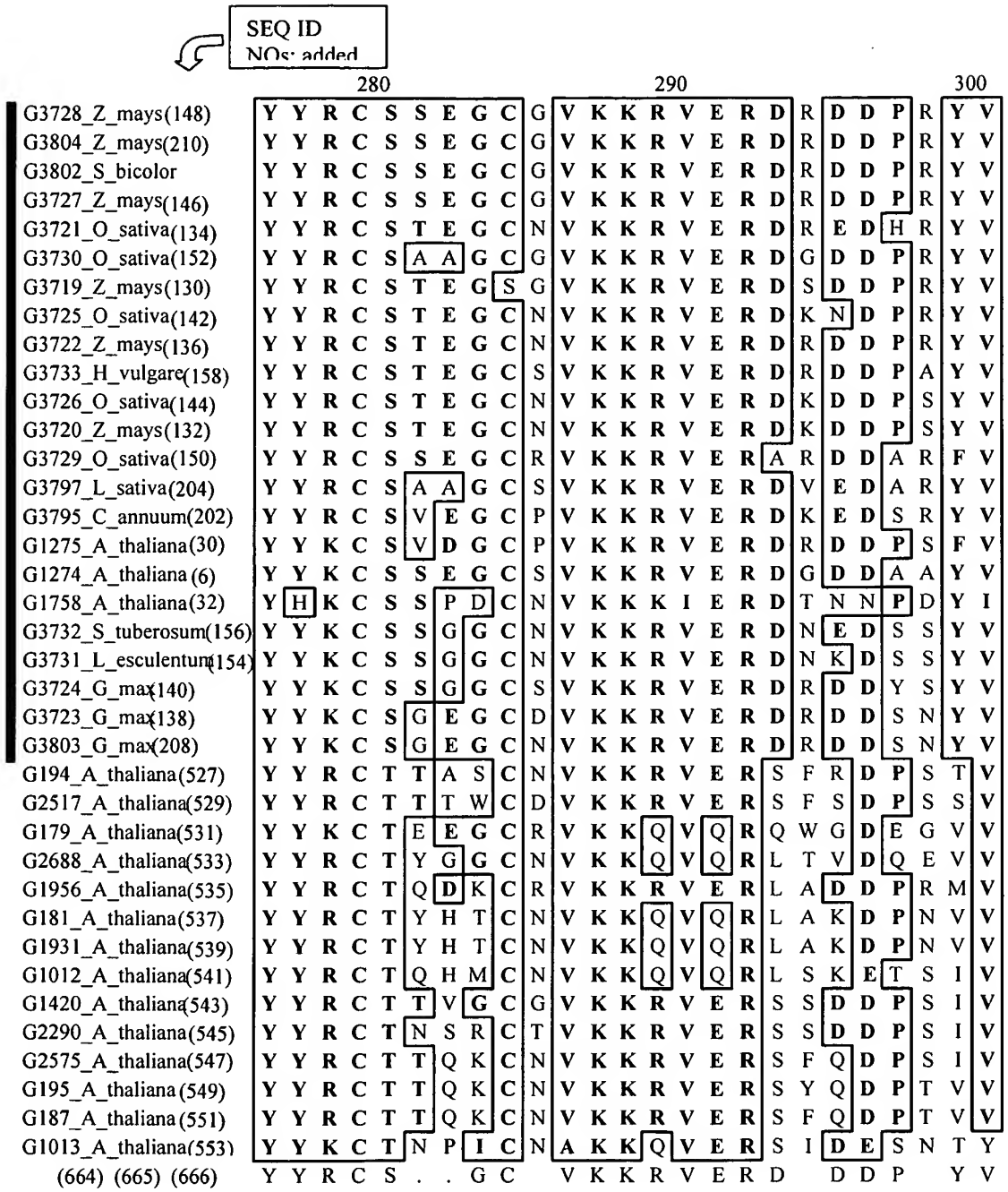
G3728_Z_mays (148) E I L D D G F K W R K Y G K K A V K N S P N P R N
G3804_Z_mays (210) E I L D D G F K W R K Y G K K A V K N S P N P R N
G3802_S_bicolor E I L D D G F K W R K Y G K K A V K N S P N P R N
G3727_Z_mays (146) E I L D D G F K W R K Y G K K A V K S S P N P R N
G3721_O_sativa (134) E I L D D G F K W R K Y G K K A V K N S P N P R N
G3730_O_sativa (152) E V L D D G F K W R K Y G K K A V K S S P N P R N
G3719_Z_mays (130) D V L D D G F K W R K Y G K K A V K S S P N P R N
G3725_O_sativa (142) E I L D D G Y K W R K Y G K K S V K N S P N P R N
G3722_Z_mays (136) E V L D D G Y K W R K Y G K K S V K N S P N P R N
G3733_H_vulgare (158) E I L D D G Y K W R K Y G K K S V K N S P N P R N
G3726_O_sativa (144) E I L D D G Y K W R K Y G K K S V K N S P N P R N
G3720_Z_mays (132) E I L D D G Y K W R K Y G K K S V K N S P N P R N
G3729_O_sativa (150) D V L D D G Y R W R K Y G K K M V K N S P N P R N
G3797_L_sativa (204) E I L D D G F K W R K Y G K K M V K N S P N P R N
G3795_C_annuum (202) E I L D D G Y K W R K Y G K K M V K N S P N P R N
G1275_A_thaliana (30) E V L D D G F K W R K Y G K K M V K N S P H P R N
G1274_A_thaliana (6) D V M D D G F K W R K Y G K K S V K N N I N K R N
G1758_A_thaliana (32) V A L D D G Y K W R K Y G K K P I T G S P F P R H
G3732_S_tuberosum (156) E V L D D G F K W R K Y G K K M V K N S S N P R N
G3731_L_esculentum (154) E V L D D G F K W R K Y G K K M V K N N P N P R N
G3724_G_max (140) E I M D D G Y K W R K Y G K K S V K S S P N L R N
G3723_G_max (138) E V M D D G Y K W R K Y G K K T V K S S P N P R N
G3803_G_max (208) E V M D D G Y K W R K Y G K K T V K N N P N P R N
G194_A_thaliana (527) D H L E D G Y R W R K Y G Q K A V K N S P F P R S
G2517_A_thaliana (529) L H L D D G Y K W R K Y G Q K P V K D S P F P R N
G179_A_thaliana (531) D I L D D G Y R W R K Y G Q K A V K N - P F P R S
G2688_A_thaliana (533) D I L D D G Y R W R K Y G Q K A V K N N K F P R S
G1956_A_thaliana (535) D V L D D G Y R W R K Y G Q K V V K N T Q H P R S
G181_A_thaliana (537) D V L D D G Y R W R K Y G Q K S V K H N A H P R S
G1931_A_thaliana (539) D V L D D G Y R W R K Y G Q K S V K N N A H P R S
G1012_A_thaliana (541) D I L D D G Y R W R K Y G Q K S V K N S L Y P R S
G1420_A_thaliana (543) D N L D D G Y R W R K Y G Q K A V K N S P Y P R S
G2290_A_thaliana (545) D N L E D G Y R W R K Y G Q K A V K N S P F P R S
G2575_A_thaliana (547) D H L E D G Y R W R K Y G Q K A V K N S P Y P R S
G195_A_thaliana (549) D H L E D G Y R W R K Y G Q K A V K N S P Y P R S
G187_A_thaliana (551) D H L E D G Y R W R K Y G Q K A V K N S P Y P R S
G1013_A_thaliana (553) G M C D D G Y K W R K Y G Q K S I K N S P N P R S
(663) (664) E . L D D G Y K W R K Y G K K V K N S P N P R N

FIG. 22K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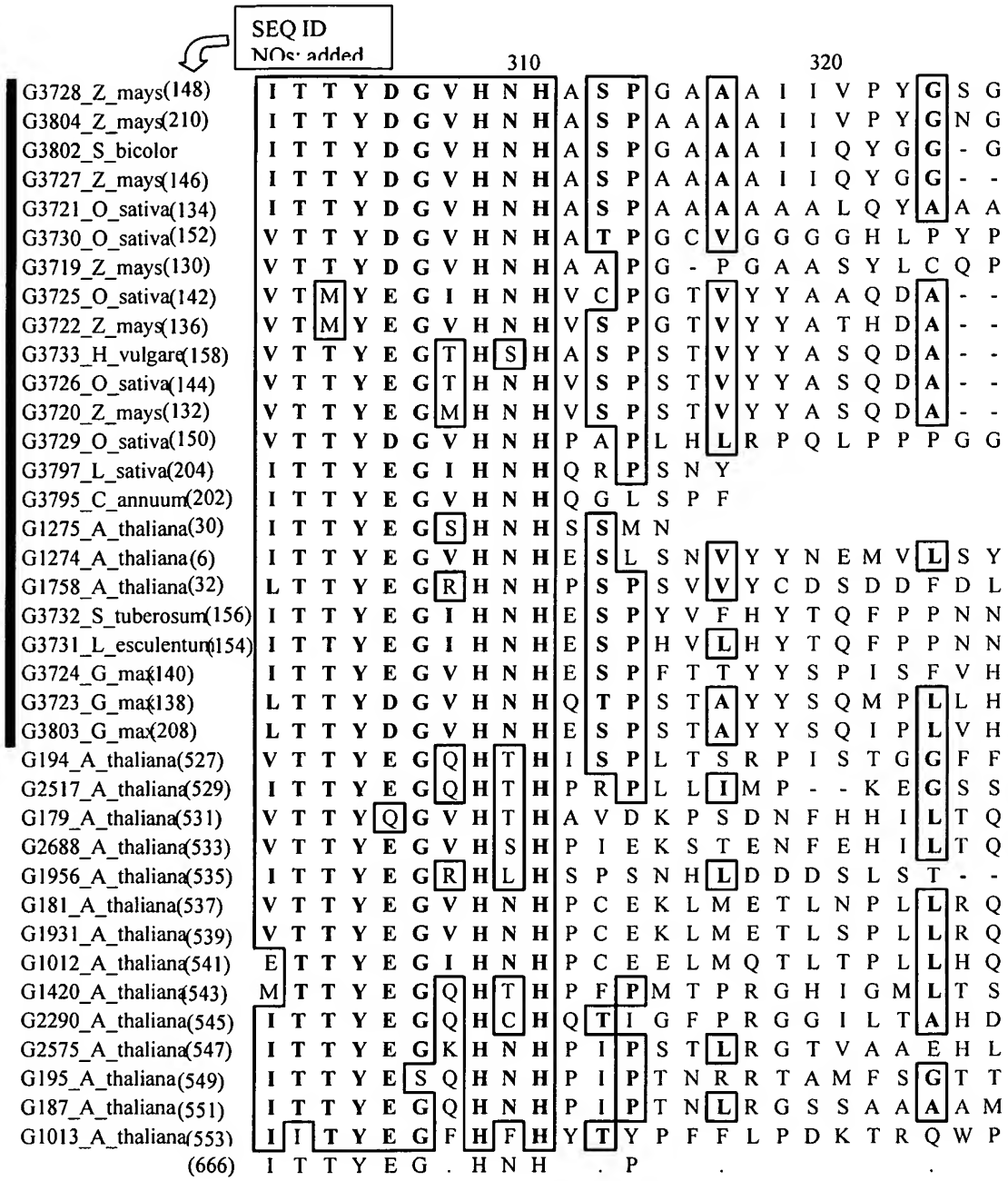
G3804_Z_mays(210) Y Y R C S S E G C G V K K R V E R D R D D P R Y V
G3802_S_bicolor Y Y R C S S E G C G V K K R V E R D R D D P R Y V
G3727_Z_mays(146) Y Y R C S S E G C G V K K R V E R D R D D P R Y V
G3721_O_sativa(134) Y Y R C S T E G C N V K K R V E R D R E D H R Y V
G3730_O_sativa(152) Y Y R C S A A G C G V K K R V E R D G D D P R Y V
G3719_Z_mays(130) Y Y R C S T E G S G V K K R V E R D S D D P R Y V
G3725_O_sativa(142) Y Y R C S T E G C N V K K R V E R D K N D P R Y V
G3722_Z_mays(136) Y Y R C S T E G C N V K K R V E R D R D D P R Y V
G3733_H_vulgare(158) Y Y R C S T E G C S V K K R V E R D R D D P A Y V
G3726_O_sativa(144) Y Y R C S T E G C N V K K R V E R D K D D P S Y V
G3720_Z_mays(132) Y Y R C S T E G C N V K K R V E R D K D D P S Y V
G3729_O_sativa(150) Y Y R C S S E G C R V K K R V E R A R D D A R F V
G3797_L_sativa(204) Y Y R C S A A G C S V K K R V E R D V E D A R Y V
G3795_C_annuum(202) Y Y R C S V E G C P V K K R V E R D K E D S R Y V
G1275_A_thaliana(30) Y Y K C S V D G C P V K K R V E R D R D D P S F V
G1274_A_thaliana(6) Y Y K C S S E G C S V K K R V E R D G D D A A Y V
G1758_A_thaliana(32) Y H K C S S P D C N V K K K I E R D T N N P D Y I
G3732_S_tuberosum(156) Y Y K C S S G G C N V K K R V E R D N E D S S Y V
G3731_L_esculentum(154) Y Y K C S S G G C N V K K R V E R D N K D S S Y V
G3724_G_max(140) Y Y K C S S G G C S V K K R V E R D R D D Y S Y V
G3723_G_max(138) Y Y K C S G E G C D V K K R V E R D R D D S N Y V
G3803_G_max(208) Y Y K C S G E G C N V K K R V E R D R D D S N Y V
G194_A_thaliana(527) Y Y R C T T A S C N V K K R V E R S F R D P S T V
G2517_A_thaliana(529) Y Y R C T T T W C D V K K R V E R S F S D P S S V
G179_A_thaliana(531) Y Y K C T E E G C R V K K Q V Q R Q W G D E G V V
G2688_A_thaliana(533) Y Y R C T Y G G C N V K K Q V Q R L T V D Q E V V
G1956_A_thaliana(535) Y Y R C T Q D K C R V K K R V E R L A D D P R M V
G181_A_thaliana(537) Y Y R C T Y H T C N V K K Q V Q R L A K D P N V V
G1931_A_thaliana(539) Y Y R C T Y H T C N V K K Q V Q R L A K D P N V V
G1012_A_thaliana(541) Y Y R C T Q H M C N V K K Q V Q R L S K E T S I V
G1420_A_thaliana(543) Y Y R C T T V G C G V K K R V E R S S D D P S I V
G2290_A_thaliana(545) Y Y R C T N S R C T V K K R V E R S S D D P S I V
G2575_A_thaliana(547) Y Y R C T T Q K C N V K K R V E R S F Q D P S I V
G195_A_thaliana(549) Y Y R C T T Q K C N V K K R V E R S Y Q D P T V V
G187_A_thaliana(551) Y Y R C T T Q K C N V K K R V E R S F Q D P T V V
G1013_A_thaliana(553) Y Y K C T N P I C N A K K Q V E R S I D E S N T Y
(664) (665) (666) Y Y R C S . . G C V K K R V E R D D D P Y V

FIG. 22L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G3721_O_sativa(134)
G3730_O_sativa(152)
G3719_Z_mays(130)
G3725_O_sativa(142)
G3722_Z_mays(136)
G3733_H_vulgare(158)
G3726_O_sativa(144)
G3720_Z_mays(132)
G3729_O_sativa(150)
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G3795_C_annuum(202)
G1275_A_thaliana(30)
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G1758_A_thaliana(32)
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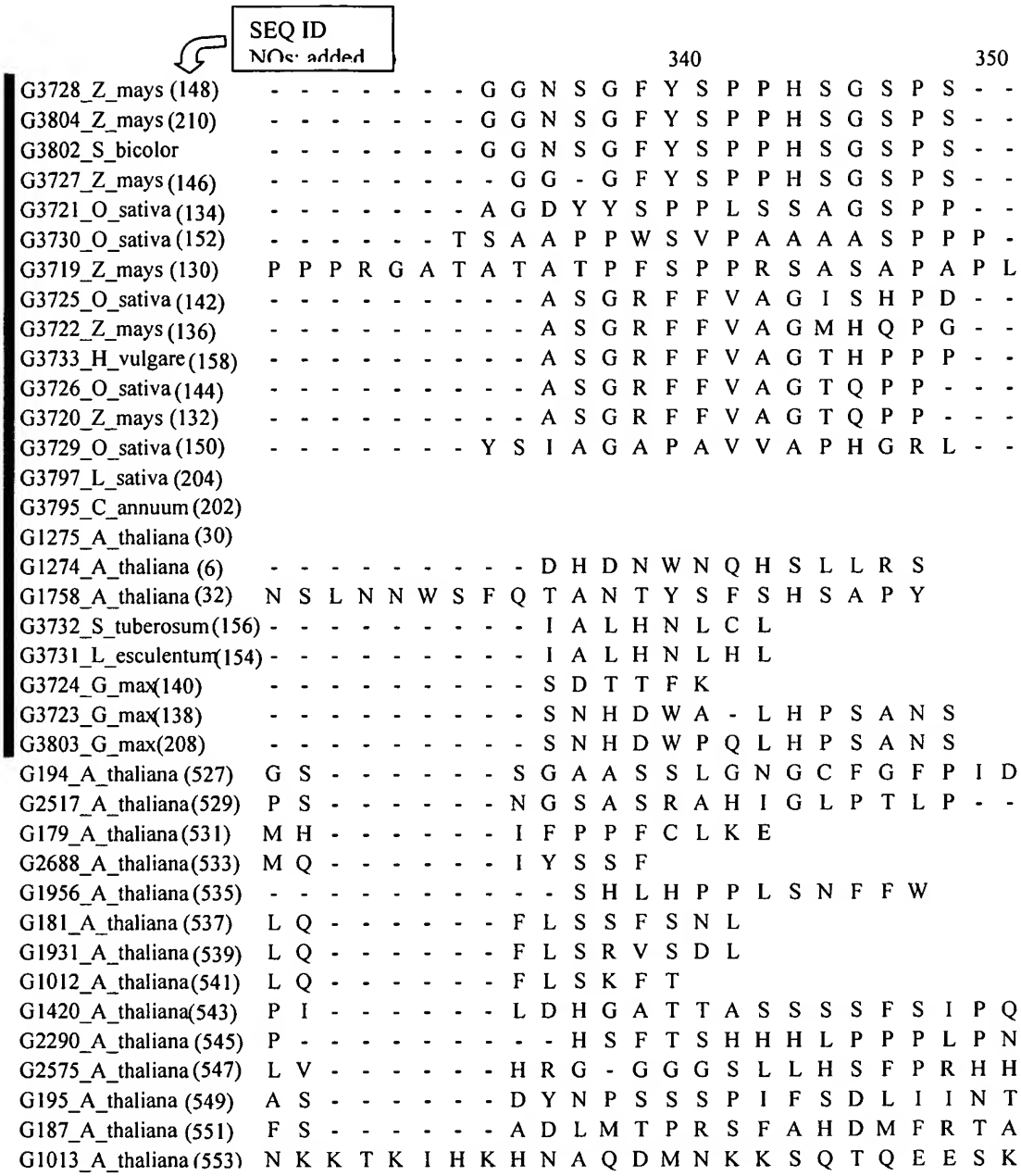
G3803_G_max(208)
G194_A_thaliana(527)
G2517_A_thaliana(529)
G179_A_thaliana(531)
G2688_A_thaliana(533)
G1956_A_thaliana(535)
G181_A_thaliana(537)
G1931_A_thaliana(539)
G1012_A_thaliana(541)
G1420_A_thaliana(543)
G2290_A_thaliana(545)
G2575_A_thaliana(547)
G195_A_thaliana(549)
G187_A_thaliana(551)
G1013_A_thaliana(553)
(666)

FIG. 22M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G3804_Z_mays (210) - - - - - - - - G G N S G F Y S P P H S G S P S - -
G3802_S_bicolor - - - - - - - - G G N S G F Y S P P H S G S P S - -
G3727_Z_mays (146) - - - - - - - - - G G - G F Y S P P H S G S P S - -
G3721_O_sativa (134) - - - - - - - - A G D Y Y S P P L S S A G S P P - -
G3730_O_sativa (152) - - - - - - T S A A P P W S V P A A A A S P P P -
G3719_Z_mays (130) P P P R G A T A T A T P F S P P R S A S A P A P L
G3725_O_sativa (142) - - - - - - - - - - A S G R F F V A G I S H P D - -
G3722_Z_mays (136) - - - - - - - - - - A S G R F F V A G M H Q P G - -
G3733_H_vulgare (158) - - - - - - - - - - A S G R F F V A G T H P P P - -
G3726_O_sativa (144) - - - - - - - - - - A S G R F F V A G T Q P P - - -
G3720_Z_mays (132) - - - - - - - - - - A S G R F F V A G T Q P P - - -
G3729_O_sativa (150) - - - - - - - - Y S I A G A P A V V A P H G R L - -
G3797_L_sativa (204)
G3795_C_annuum (202)
G1275_A_thaliana (30)
G1274_A_thaliana (6) - - - - - - - - - - D H D N W N Q H S L L R S
G1758_A_thaliana (32) N S L N N W S F Q T A N T Y S F S H S A P Y
G3732_S_tuberosum (156) - - - - - - - - - - I A L H N L C L
G3731_L_esculentum (154) - - - - - - - - - - I A L H N L H L
G3724_G_max (140) - - - - - - - - - - S D T T F K
G3723_G_max (138) - - - - - - - - - - S N H D W A - L H P S A N S
G3803_G_max (208) - - - - - - - - - - S N H D W P Q L H P S A N S
G194_A_thaliana (527) G S - - - - - - S G A A S S L G N G C F G F P I D
G2517_A_thaliana (529) P S - - - - - - N G S A S R A H I G L P T L P - -
G179_A_thaliana (531) M H - - - - - - I F P P F C L K E
G2688_A_thaliana (533) M Q - - - - - - I Y S S F
G1956_A_thaliana (535) - - - - - - - - - - S H L H P P L S N F F W
G181_A_thaliana (537) L Q - - - - - - F L S S F S N L
G1931_A_thaliana (539) L Q - - - - - - F L S R V S D L
G1012_A_thaliana (541) L Q - - - - - - F L S K F T
G1420_A_thaliana (543) P I - - - - - - L D H G A T T A S S S S F S I P Q
G2290_A_thaliana (545) P - - - - - - - - - - H S F T S H H H L P P P L P N
G2575_A_thaliana (547) L V - - - - - - H R G - G G G S L L H S F P R H H
G195_A_thaliana (549) A S - - - - - - D Y N P S S S P I F S D L I I N T
G187_A_thaliana (551) F S - - - - - - A D L M T P R S F A H D M F R T A
G1013_A_thaliana (553) N K K T K I H K H N A Q D M N K K S Q T Q E E S K

FIG. 22N

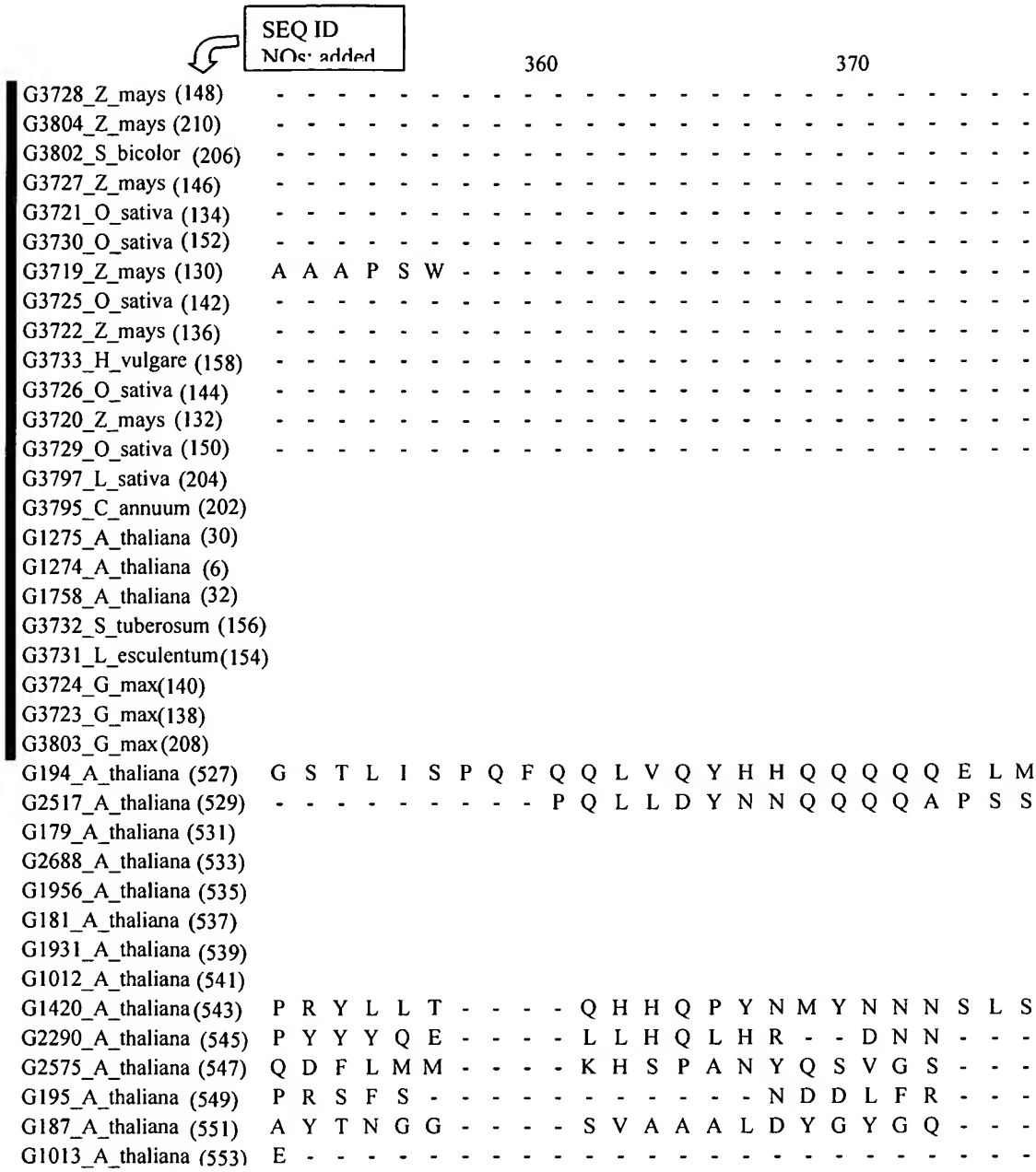
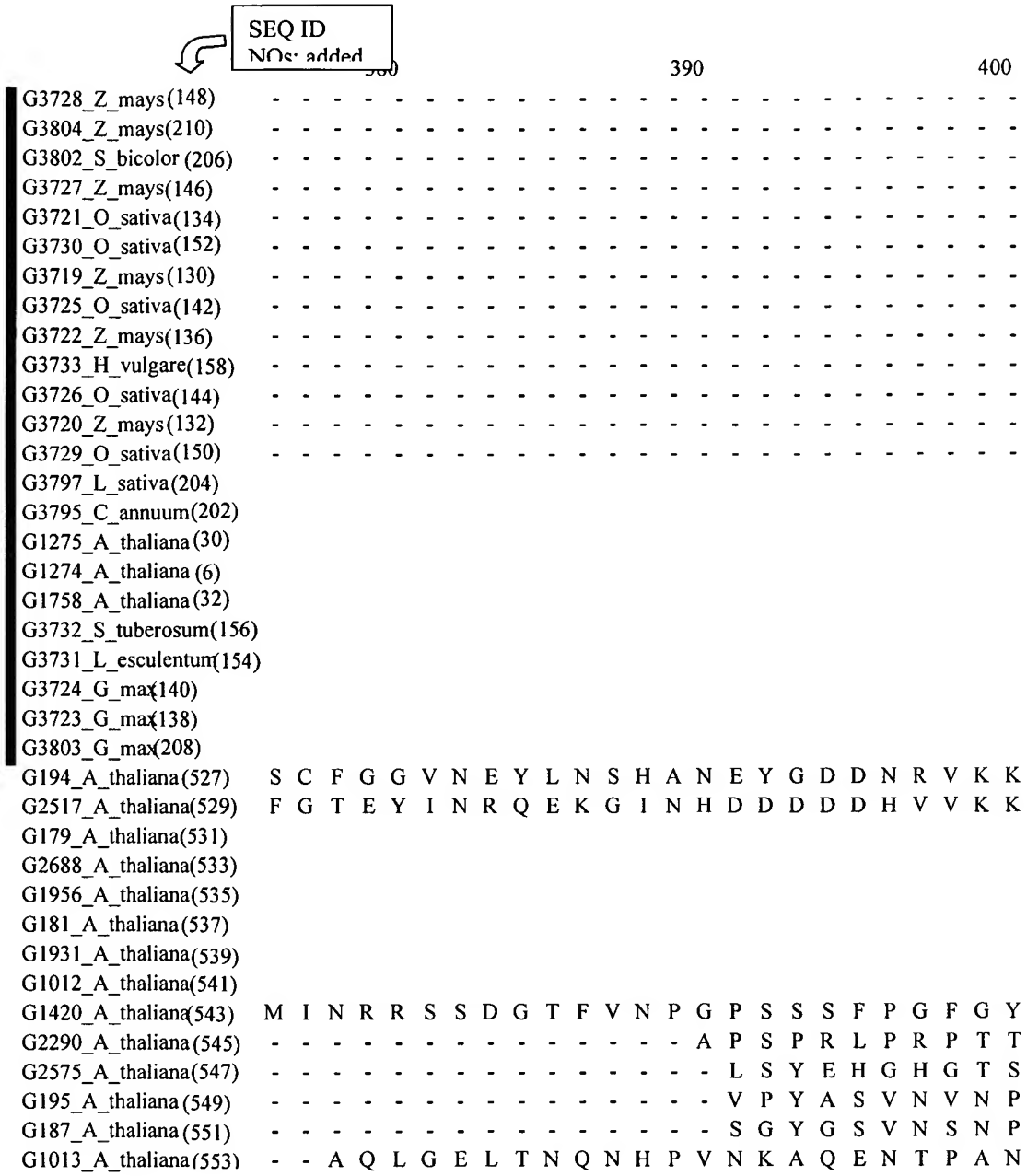

SEQ ID NOs: added
360
370
G3728_Z_mays (148)
G3804_Z_mays (210)
G3802_S_bicolor (206)
G3727_Z_mays (146)
G3721_O_sativa (134)
G3730_O_sativa (152)
G3719_Z_mays (130) A A A P S W
G3725_O_sativa (142)
G3722_Z_mays (136)
G3733_H_vulgare (158)
G3726_O_sativa (144)
G3720_Z_mays (132)
G3729_O_sativa (150)
G3797_L_sativa (204)
G3795_C_annuum (202)
G1275_A_thaliana (30)
G1274_A_thaliana (6)
G1758_A_thaliana (32)
G3732_S_tuberosum (156)
G3731_L_esculentum(154)
G3724_G_max(140)
G3723_G_max(138)
G3803_G_max(208)
G194_A_thaliana (527) G S T L I S P Q F Q Q L V Q Y H H Q Q Q Q Q E L M
G2517_A_thaliana (529) P Q L L D Y N N Q Q Q Q A P S S
G179_A_thaliana (531)
G2688_A_thaliana (533)
G1956_A_thaliana (535)
G181_A_thaliana (537)
G1931_A_thaliana (539)
G1012_A_thaliana (541)
G1420_A_thaliana(543) P R Y L L T Q H H Q P Y N M Y N N N S L S
G2290_A_thaliana (545) P Y Y Y Q E L L H Q L H R D N N
G2575_A_thaliana (547) Q D F L M M K H S P A N Y Q S V G S
G195_A_thaliana (549) P R S F S N D D L F R
G187_A_thaliana (551) A Y T N G G S V A A A L D Y G Y G Q
G1013_A_thaliana (553) E

FIG. 22O


SEQ ID NOs: added
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400
G3728_Z_mays(148)
G3804_Z_mays(210)
G3802_S_bicolor(206)
G3727_Z_mays(146)
G3721_O_sativa(134)
G3730_O_sativa(152)
G3719_Z_mays(130)
G3725_O_sativa(142)
G3722_Z_mays(136)
G3733_H_vulgare(158)
G3726_O_sativa(144)
G3720_Z_mays(132)
G3729_O_sativa(150)
G3797_L_sativa(204)
G3795_C_annuum(202)
G1275_A_thaliana(30)
G1274_A_thaliana(6)
G1758_A_thaliana(32)
G3732_S_tuberosum(156)
G3731_L_esculentum(154)
G3724_G_max(140)
G3723_G_max(138)
G3803_G_max(208)
G194_A_thaliana(527) S C F G G V N E Y L N S H A N E Y G D D N R V K K
G2517_A_thaliana(529) F G T E Y I N R Q E K G I N H D D D D D H V V K K
G179_A_thaliana(531)
G2688_A_thaliana(533)
G1956_A_thaliana(535)
G181_A_thaliana(537)
G1931_A_thaliana(539)
G1012_A_thaliana(541)
G1420_A_thaliana(543) M I N R R S S D G T F V N P G P S S S F P G F G Y
G2290_A_thaliana(545) A P S P R L P R P T T
G2575_A_thaliana(547) L S Y E H G H G T S
G195_A_thaliana(549) V P Y A S V N V N P
G187_A_thaliana(551) S G Y G S V N S N P
G1013_A_thaliana(553) A Q L G E L T N Q N H P V N K A Q E N T P A N

FIG. 22P

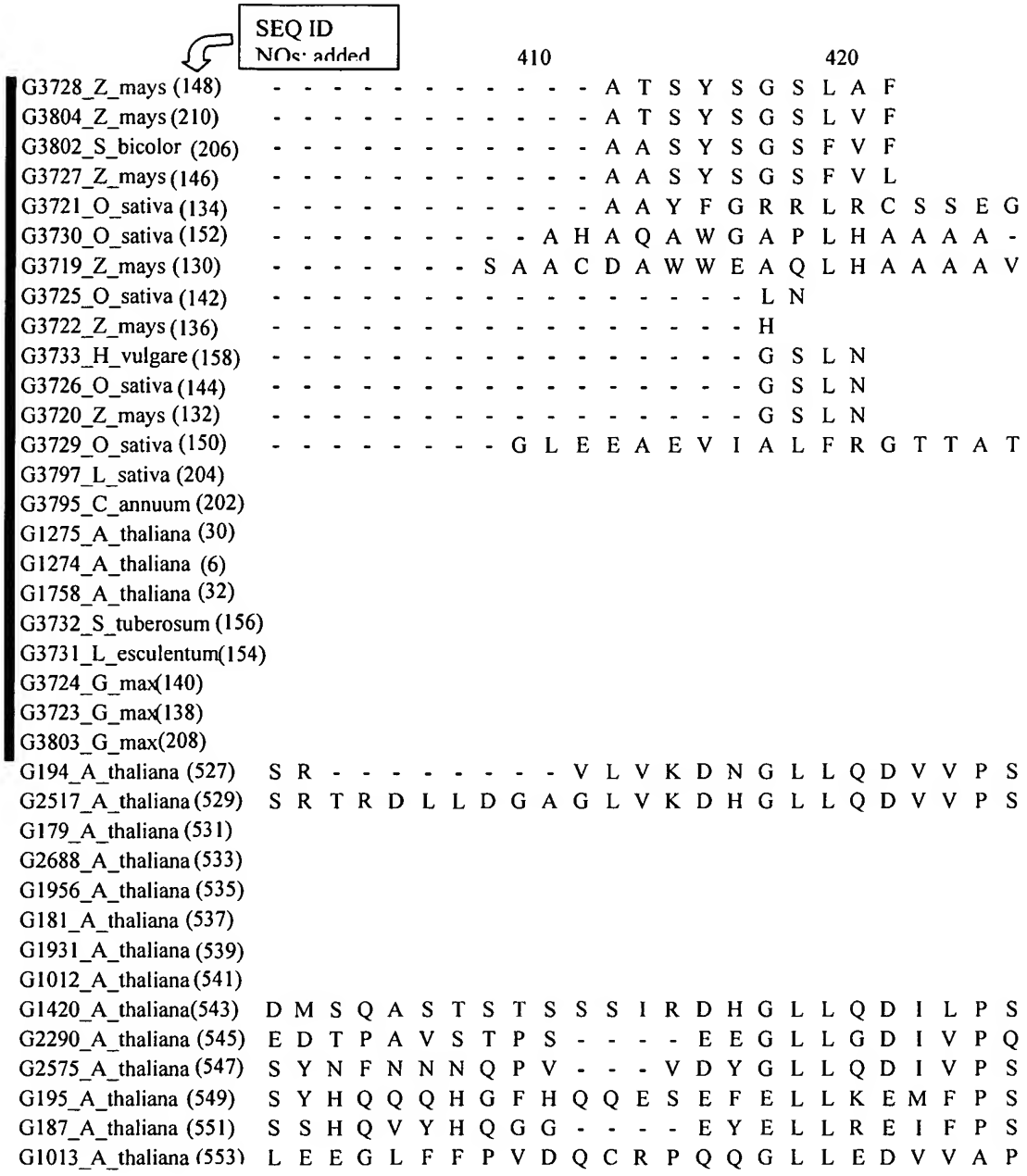

SEQ ID NOs: added
410
420
G3728_Z_mays (148) - - - - - - - - - - - - A T S Y S G S L A F
G3804_Z_mays (210) - - - - - - - - - - - - A T S Y S G S L V F
G3802_S_bicolor (206) - - - - - - - - - - - - A A S Y S G S F V F
G3727_Z_mays (146) - - - - - - - - - - - - A A S Y S G S F V L
G3721_O_sativa (134) - - - - - - - - - - - - A A Y F G R R L R C S S E G
G3730_O_sativa (152) - - - - - - - - - - A H A Q A W G A P L H A A A A -
G3719_Z_mays (130) - - - - - - - S A A C D A W W E A Q L H A A A A V
G3725_O_sativa (142) - - - - - - - - - - - - - - - - L N
G3722_Z_mays (136) - - - - - - - - - - - - - - - - H
G3733_H_vulgare (158) - - - - - - - - - - - - - - - - G S L N
G3726_O_sativa (144) - - - - - - - - - - - - - - - - G S L N
G3720_Z_mays (132) - - - - - - - - - - - - - - - - G S L N
G3729_O_sativa (150) - - - - - - - - G L E E A E V I A L F R G T T A T
G3797_L_sativa (204)
G3795_C_annuum (202)
G1275_A_thaliana (30)
G1274_A_thaliana (6)
G1758_A_thaliana (32)
G3732_S_tuberosum (156)
G3731_L_esculentum(154)
G3724_G_max(140)
G3723_G_max(138)
G3803_G_max(208)
G194_A_thaliana (527) S R - - - - - - - - V L V K D N G L L Q D V V P S
G2517_A_thaliana (529) S R T R D L L D G A G L V K D H G L L Q D V V P S
G179_A_thaliana (531)
G2688_A_thaliana (533)
G1956_A_thaliana (535)
G181_A_thaliana (537)
G1931_A_thaliana (539)
G1012_A_thaliana (541)
G1420_A_thaliana(543) D M S Q A S T S T S S S I R D H G L L Q D I L P S
G2290_A_thaliana (545) E D T P A V S T P S - - - - E E G L L G D I V P Q
G2575_A_thaliana (547) S Y N F N N N Q P V - - - V D Y G L L Q D I V P S
G195_A_thaliana (549) S Y H Q Q Q H G F H Q Q E S E F E L L K E M F P S
G187_A_thaliana (551) S S H Q V Y H Q G G - - - - E Y E L L R E I F P S
G1013_A_thaliana (553) L E E G L F F P V D Q C R P Q Q G L L E D V V A P

FIG. 22Q

SEQ ID NOs: added

440 450

G3728_Z_mays (148)
G3804_Z_mays (210)
G3802_S_bicolor (206)
G3727_Z_mays (146)
G3721_O_sativa (134)
G3730_O_sativa (152) A H S S E S S F
G3719_Z_mays (130) A H S S E S S Y
G3725_O_sativa (142)
G3722_Z_mays (136)
G3733_H_vulgare (158)
G3726_O_sativa (144)
G3720_Z_mays (132)
G3729_O_sativa (150) S L L L P
G3797_L_sativa (204)
G3795_C_annuum (202)
G1275_A_thaliana (30)
G1274_A_thaliana (6)
G1758_A_thaliana (32)
G3732_S_tuberosum (156)
G3731_L_esculentum (154)
G3724_G_max (140)
G3723_G_max (138)
G3803_G_max (208)
G194_A_thaliana (527) H M L K E E
G2517_A_thaliana (529) H I I K E E Y
G179_A_thaliana (531)
G2688_A_thaliana (533)
G1956_A_thaliana (535)
G181_A_thaliana (537)
G1931_A_thaliana (539)
G1012_A_thaliana (541)
G1420_A_thaliana (543) Q I R S D T I N T Q T N E E N K K
G2290_A_thaliana (545) T M R N P
G2575_A_thaliana (547) M F S K N E S
G195_A_thaliana (549) V F F K Q E P
G187_A_thaliana (551) I F F K Q E P
G1013_A_thaliana (553) A M K N I P T R D S V L T A S

FIG. 22R

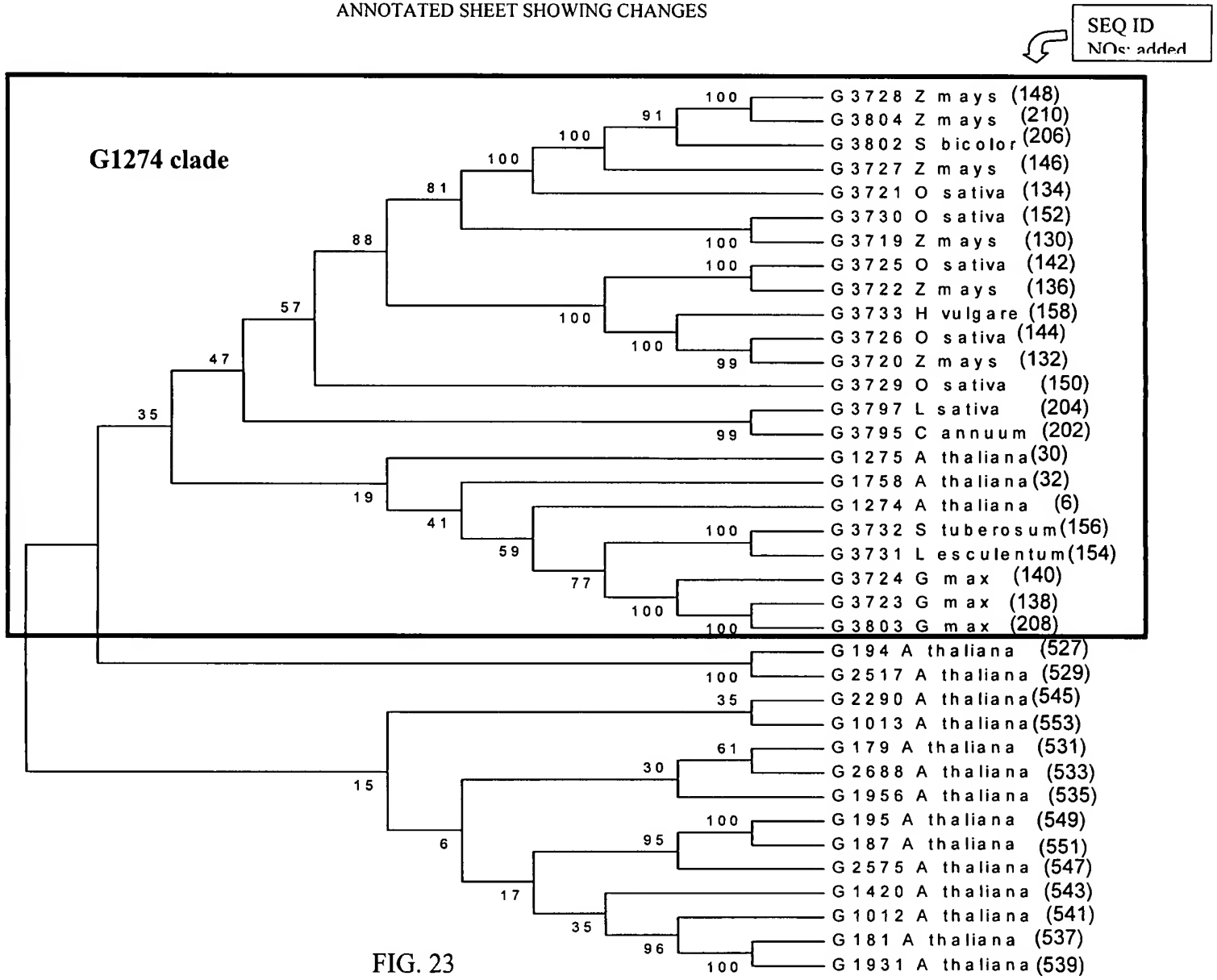

SEQ ID NOs: added
G1274 clade
G3728 Z mays (148)
G3804 Z mays (210)
G3802 S bicolor (206)
G3727 Z mays (146)
G3721 O sativa (134)
G3730 O sativa (152)
G3719 Z mays (130)
G3725 O sativa (142)
G3722 Z mays (136)
G3733 H vulgare (158)
G3726 O sativa (144)
G3720 Z mays (132)
G3729 O sativa (150)
G3797 L sativa (204)
G3795 C annuum (202)
G1275 A thaliana (30)
G1758 A thaliana (32)
G1274 A thaliana (6)
G3732 S tuberosum (156)
G3731 L esculentum (154)
G3724 G max (140)
G3723 G max (138)
G3803 G max (208)
G194 A thaliana (527)
G2517 A thaliana (529)
G2290 A thaliana (545)
G1013 A thaliana (553)
G179 A thaliana (531)
G2688 A thaliana (533)
G1956 A thaliana (535)
G195 A thaliana (549)
G187 A thaliana (551)
G2575 A thaliana (547)
G1420 A thaliana (543)
G1012 A thaliana (541)
G181 A thaliana (537)
G1931 A thaliana (539)

FIG. 23

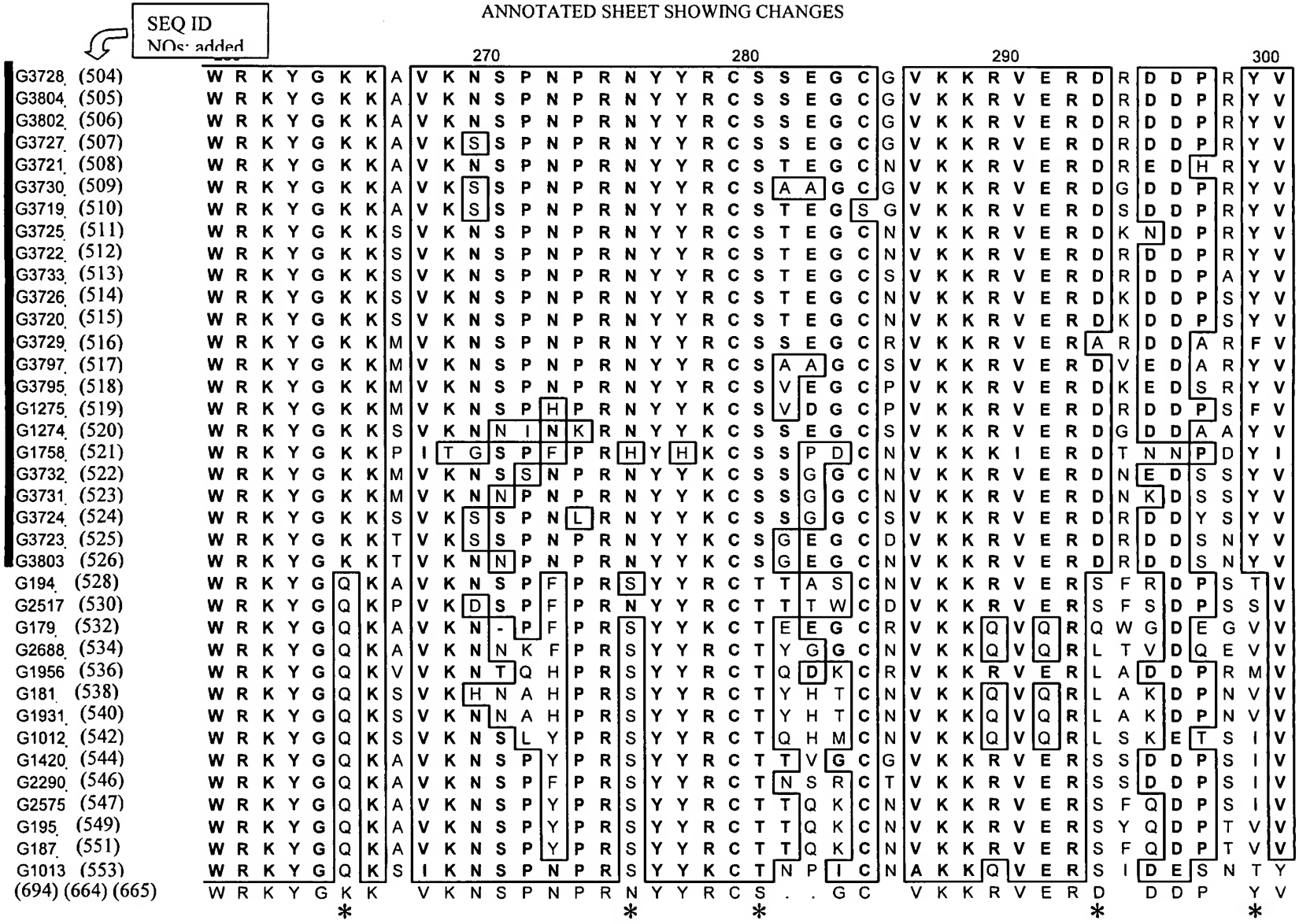

SEQ ID
NOs: added
270
280
290
300
G3728 (504)
G3804 (505)
G3802 (506)
G3727 (507)
G3721 (508)
G3730 (509)
G3719 (510)
G3725 (511)
G3722 (512)
G3733 (513)
G3726 (514)
G3720 (515)
G3729 (516)
G3797 (517)
G3795 (518)
G1275 (519)
G1274 (520)
G1758 (521)
G3732 (522)
G3731 (523)
G3724 (524)
G3723 (525)
G3803 (526)
G194 (528)
G2517 (530)
G179 (532)
G2688 (534)
G1956 (536)
G181 (538)
G1931 (540)
G1012 (542)
G1420 (544)
G2290 (546)
G2575 (547)
G195 (549)
G187 (551)
G1013 (553)
(694) (664) (665)

FIG. 24

SEQ ID NOs: added

		10	20	30
G3809_O_sativa	(593)	M A V E G F E E A I K C L E N L K L E S G E A S L E Q R V R		
pG3807_O_sativa	(594)			
pG521	(595)			
pG3041	(596)			
pG3832 (partial)	(592)			
pG515	(20)			
pG2053	(10)			
pG516	(22)			
pG517	(24)			
pG513	(597)			
pG960	(598)			
pG3834_B_rapa	(599)			
pG1455	(600)			M
pG3805_O_sativa	(601)			
pG958	(602)			
pG1924	(603)			
pG518	(604)			
pG3808_O_sativa	(605)		M R L A R Q Q Q Q V V V A A	
pG3833_G_max	(606)			
pG523	(607)			
pG514	(608)			
pG3806_O_sativa	(609)			
pG526	(610)			
pG1454	(611)			

FIG. 27A

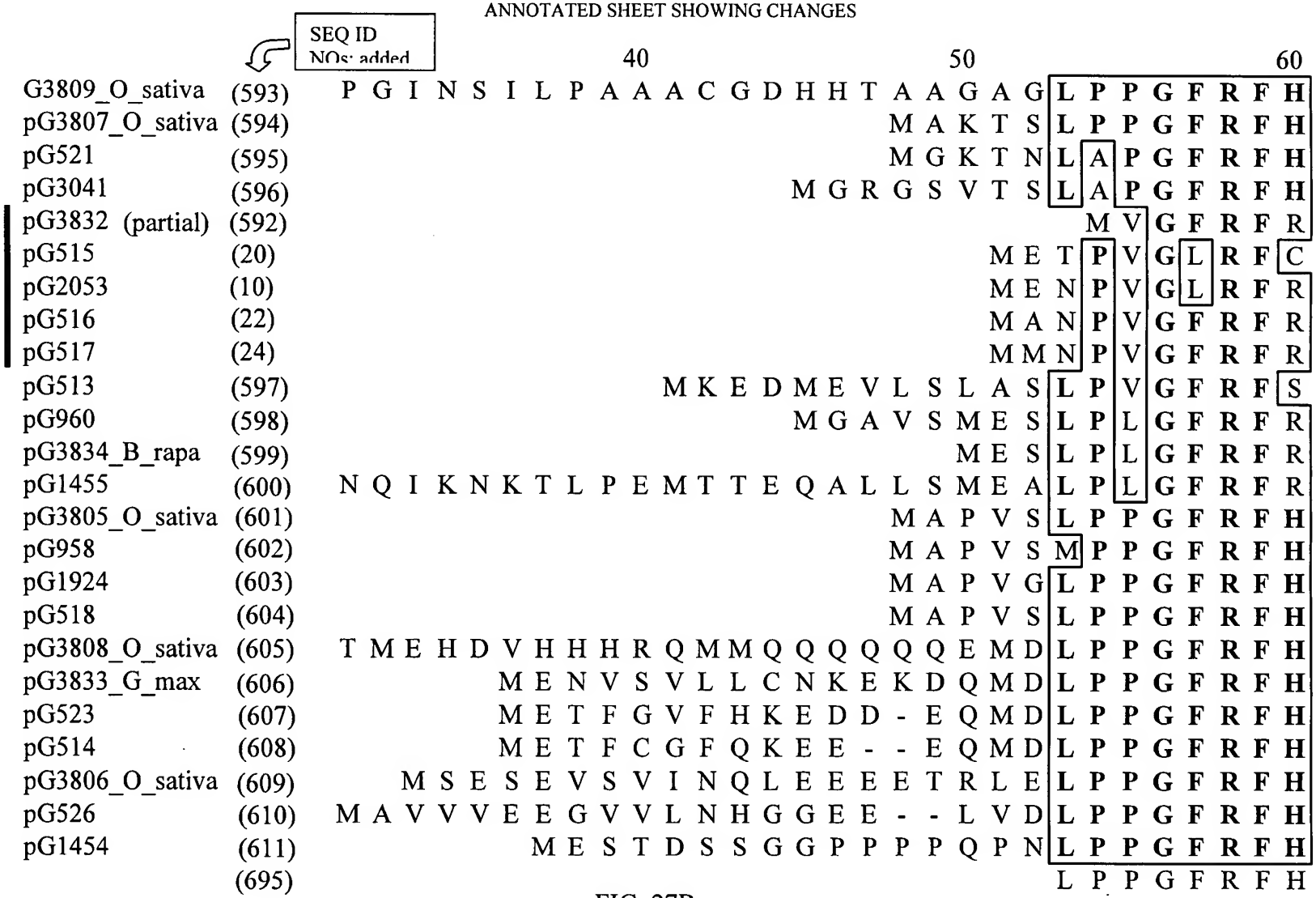

SEQ ID NOs: added
40
50
60
G3809_O_sativa (593) P G I N S I L P A A A C G D H H T A A G A G L P P G F R F H
pG3807_O_sativa (594) M A K T S L P P G F R F H
pG521 (595) M G K T N L A P G F R F H
pG3041 (596) M G R G S V T S L A P G F R F H
pG3832 (partial) (592) M V G F R F R
pG515 (20) M E T P V G L R F C
pG2053 (10) M E N P V G L R F R
pG516 (22) M A N P V G F R F R
pG517 (24) M M N P V G F R F R
pG513 (597) M K E D M E V L S L A S L P V G F R F S
pG960 (598) M G A V S M E S L P L G F R F R
pG3834_B_rapa (599) M E S L P L G F R F R
pG1455 (600) N Q I K N K T L P E M T T E Q A L L S M E A L P L G F R F R
pG3805_O_sativa (601) M A P V S L P P G F R F H
pG958 (602) M A P V S M P P G F R F H
pG1924 (603) M A P V G L P P G F R F H
pG518 (604) M A P V S L P P G F R F H
pG3808_O_sativa (605) T M E H D V H H H R Q M M Q Q Q Q Q Q E M D L P P G F R F H
pG3833_G_max (606) M E N V S V L L C N K E K D Q M D L P P G F R F H
pG523 (607) M E T F G V F H K E D D - E Q M D L P P G F R F H
pG514 (608) M E T F C G F Q K E E - - E Q M D L P P G F R F H
pG3806_O_sativa (609) M S E S E V S V I N Q L E E E E T R L E L P P G F R F H
pG526 (610) M A V V V E E G V V L N H G G E E - - L V D L P P G F R F H
pG1454 (611) M E S T D S S G G P P P P Q P N L P P G F R F H
(695) L P P G F R F H

FIG. 27B

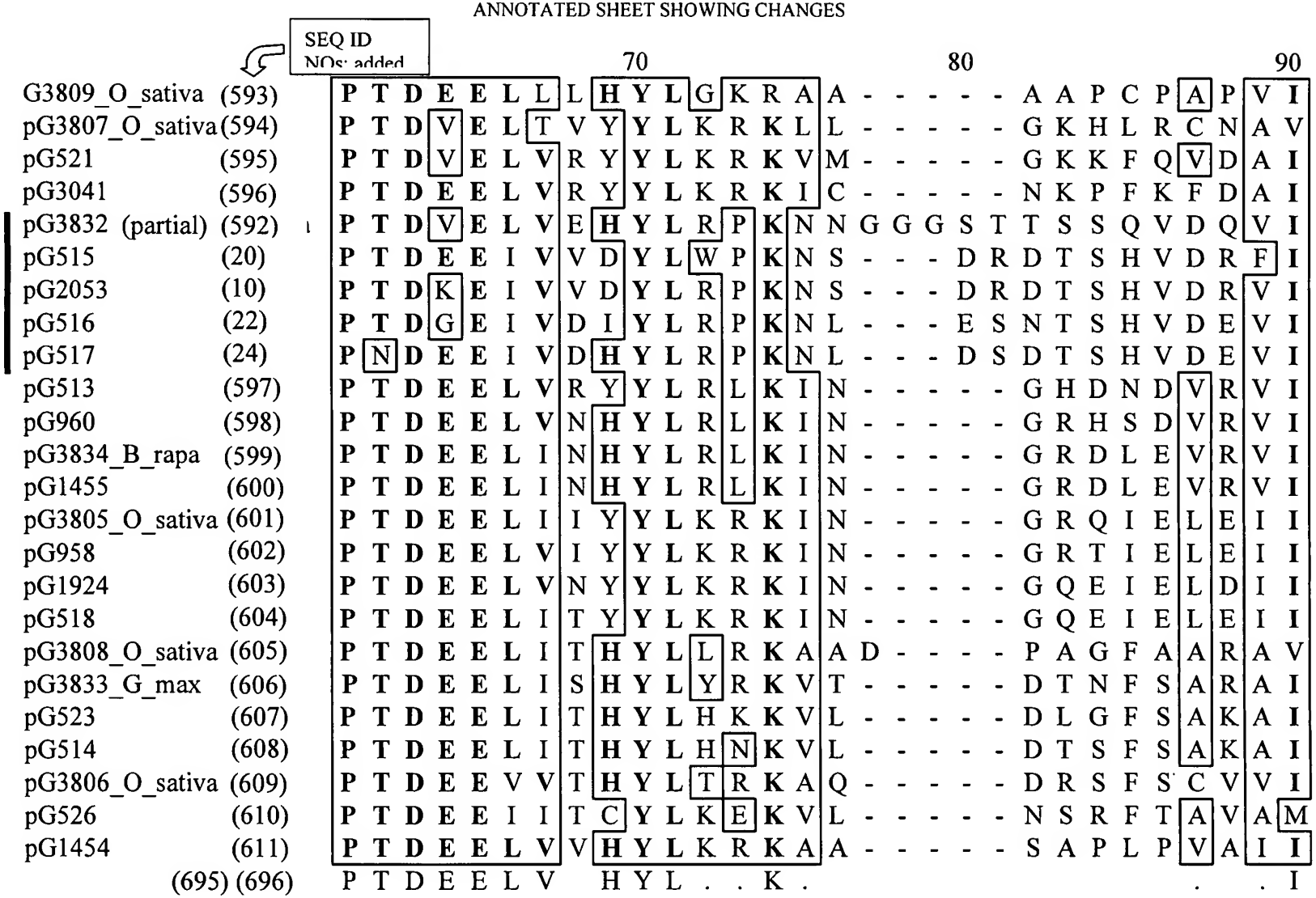

SEQ ID NOs: added
70
80
90
G3809_O_sativa (593) P T D E E L L L H Y L G K R A A - - - - - - A A P C P A P V I
pG3807_O_sativa (594) P T D V E L T V Y Y L K R K L L - - - - - - G K H L R C N A V
pG521 (595) P T D V E L V R Y Y L K R K V M - - - - - - G K K F Q V D A I
pG3041 (596) P T D E E L V R Y Y L K R K I C - - - - - - N K P F K F D A I
pG3832 (partial) (592) P T D V E L V E H Y L R P K N N G G G S T T S S Q V D Q V I
pG515 (20) P T D E E I V V D Y L W P K N S - - - D R D T S H V D R F I
pG2053 (10) P T D K E I V V D Y L R P K N S - - - D R D T S H V D R V I
pG516 (22) P T D G E I V D I Y L R P K N L - - - E S N T S H V D E V I
pG517 (24) P N D E E I V D H Y L R P K N L - - - D S D T S H V D E V I
pG513 (597) P T D E E L V R Y Y L R L K I N - - - - - - G H D N D V R V I
pG960 (598) P T D E E L V N H Y L R L K I N - - - - - - G R H S D V R V I
pG3834_B_rapa (599) P T D E E L I N H Y L R L K I N - - - - - - G R D L E V R V I
pG1455 (600) P T D E E L I N H Y L R L K I N - - - - - - G R D L E V R V I
pG3805_O_sativa (601) P T D E E L I I Y Y L K R K I N - - - - - - G R Q I E L E I I
pG958 (602) P T D E E L V I Y Y L K R K I N - - - - - - G R T I E L E I I
pG1924 (603) P T D E E L V N Y Y L K R K I N - - - - - - G Q E I E L D I I
pG518 (604) P T D E E L I T Y Y L K R K I N - - - - - - G Q E I E L E I I
pG3808_O_sativa (605) P T D E E L I T H Y L L R K A A D - - - - - P A G F A A R A V
pG3833_G_max (606) P T D E E L I S H Y L Y R K V T - - - - - - D T N F S A R A I
pG523 (607) P T D E E L I T H Y L H K K V L - - - - - - D L G F S A K A I
pG514 (608) P T D E E L I T H Y L H N K V L - - - - - - D T S F S A K A I
pG3806_O_sativa (609) P T D E E V V T H Y L T R K A Q - - - - - - D R S F S C V V I
pG526 (610) P T D E E I I T C Y L K E K V L - - - - - - N S R F T A V A M
pG1454 (611) P T D E E L V V H Y L K R K A A - - - - - - S A P L P V A I I
(695) (696) P T D E E L V H Y L . . K . . I

FIG. 27C

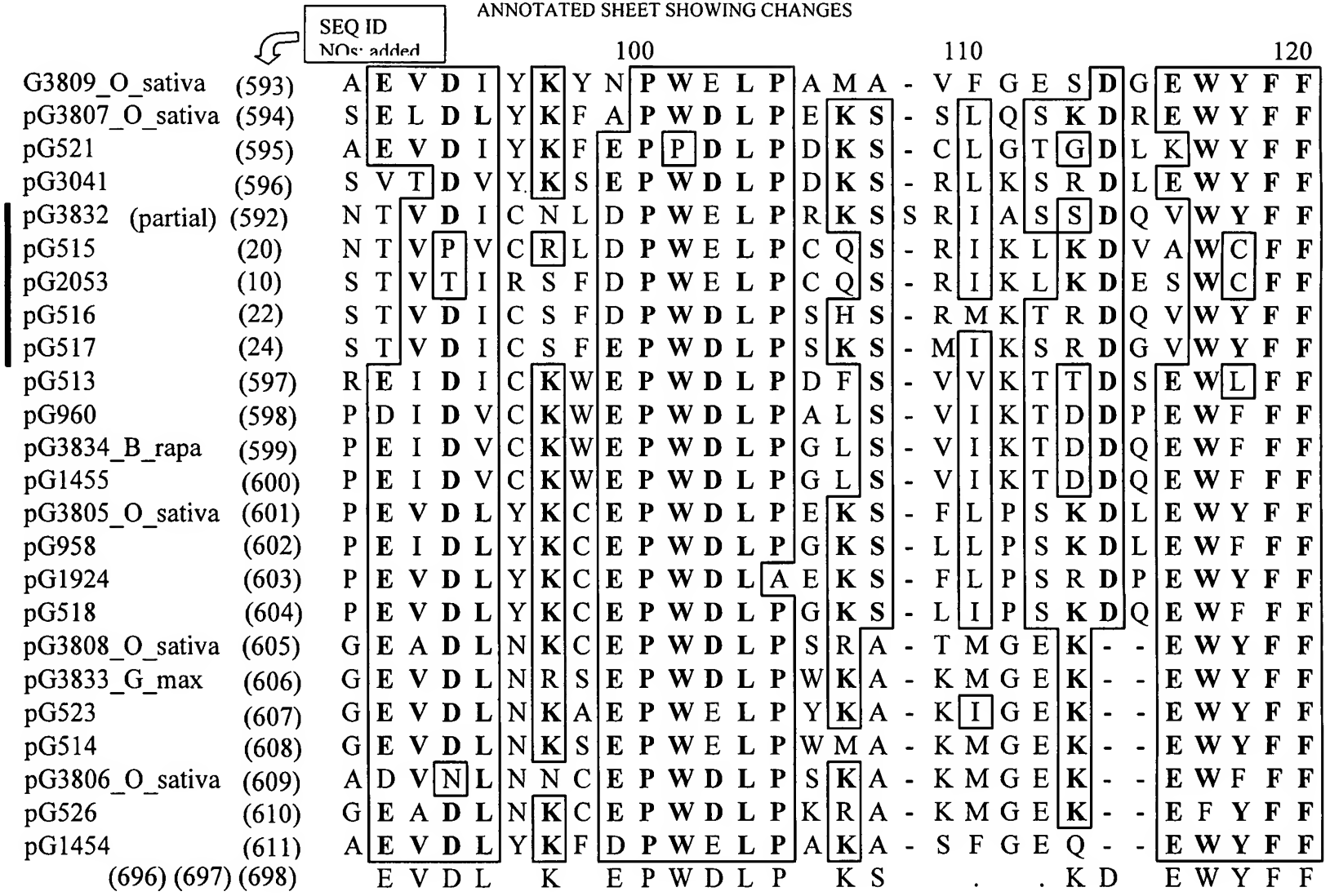
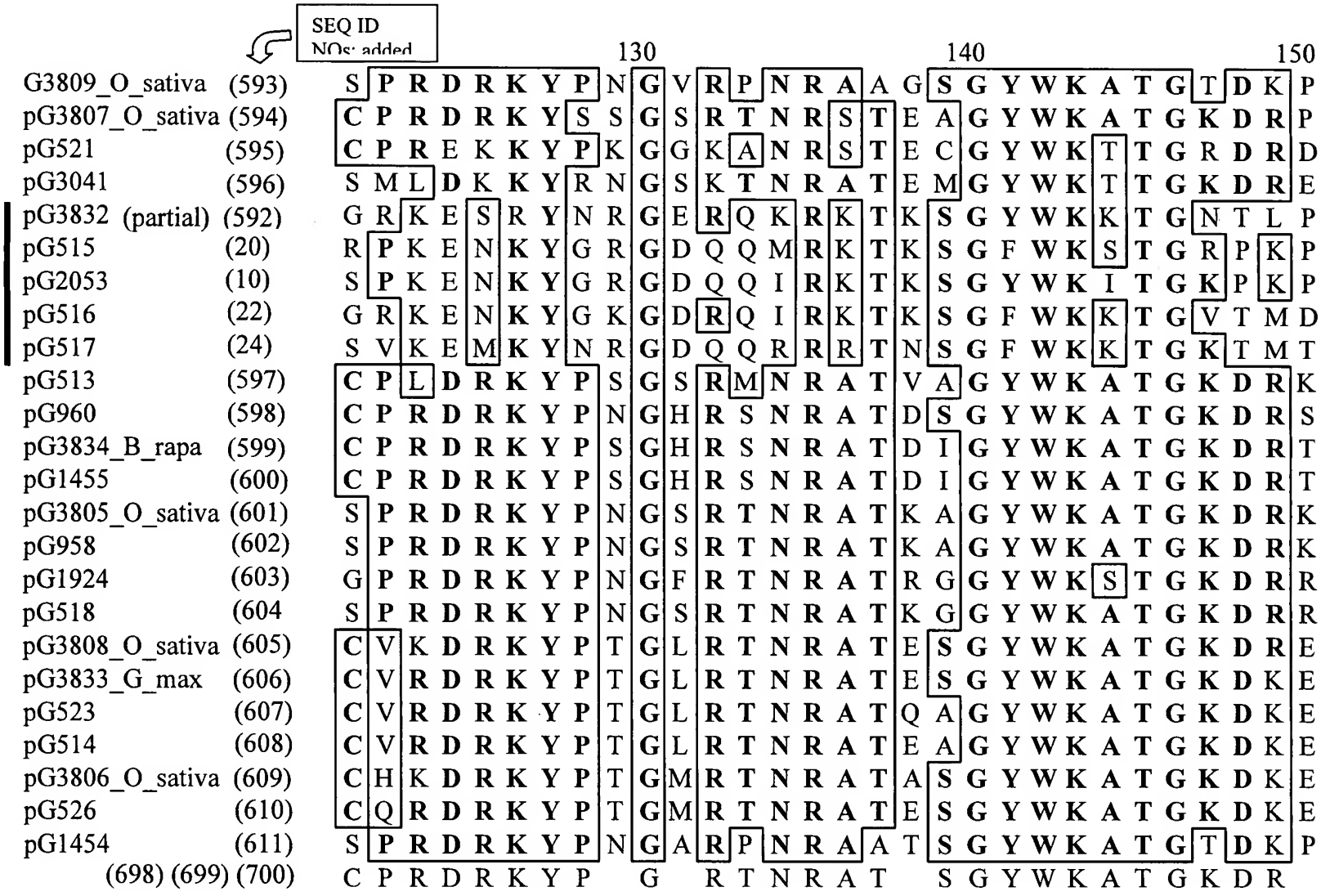

SEQ ID NOs: added
100
110
120
G3809_O_sativa (593) A E V D I Y K Y N P W E L P A M A - V F G E S D G E W Y F F
pG3807_O_sativa (594) S E L D L Y K F A P W D L P E K S - S L Q S K D R E W Y F F
pG521 (595) A E V D I Y K F E P P D L P D K S - C L G T G D L K W Y F F
pG3041 (596) S V T D V Y K S E P W D L P D K S - R L K S R D L E W Y F F
pG3832 (partial) (592) N T V D I C N L D P W E L P R K S S R I A S S D Q V W Y F F
pG515 (20) N T V P V C R L D P W E L P C Q S - R I K L K D V A W C F F
pG2053 (10) S T V T I R S F D P W E L P C Q S - R I K L K D E S W C F F
pG516 (22) S T V D I C S F D P W D L P S H S - R M K T R D Q V W Y F F
pG517 (24) S T V D I C S F E P W D L P S K S - M I K S R D G V W Y F F
pG513 (597) R E I D I C K W E P W D L P D F S - V V K T T D S E W L F F
pG960 (598) P D I D V C K W E P W D L P A L S - V I K T D D P E W F F F
pG3834_B_rapa (599) P E I D V C K W E P W D L P G L S - V I K T D D Q E W F F F
pG1455 (600) P E I D V C K W E P W D L P G L S - V I K T D D Q E W F F F
pG3805_O_sativa (601) P E V D L Y K C E P W D L P E K S - F L P S K D L E W Y F F
pG958 (602) P E I D L Y K C E P W D L P G K S - L L P S K D L E W F F F
pG1924 (603) P E V D L Y K C E P W D L A E K S - F L P S R D P E W Y F F
pG518 (604) P E V D L Y K C E P W D L P G K S - L I P S K D Q E W F F F
pG3808_O_sativa (605) G E A D L N K C E P W D L P S R A - T M G E K - - E W Y F F
pG3833_G_max (606) G E V D L N R S E P W D L P W K A - K M G E K - - E W Y F F
pG523 (607) G E V D L N K A E P W E L P Y K A - K I G E K - - E W Y F F
pG514 (608) G E V D L N K S E P W E L P W M A - K M G E K - - E W Y F F
pG3806_O_sativa (609) A D V N L N N C E P W D L P S K A - K M G E K - - E W F F F
pG526 (610) G E A D L N K C E P W D L P K R A - K M G E K - - E F Y F F
pG1454 (611) A E V D L Y K F D P W E L P A K A - S F G E Q - - E W Y F F
(696) (697) (698) E V D L K E P W D L P K S . . K D E W Y F F

FIG. 27D


SEQ ID NOs: added
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140
150
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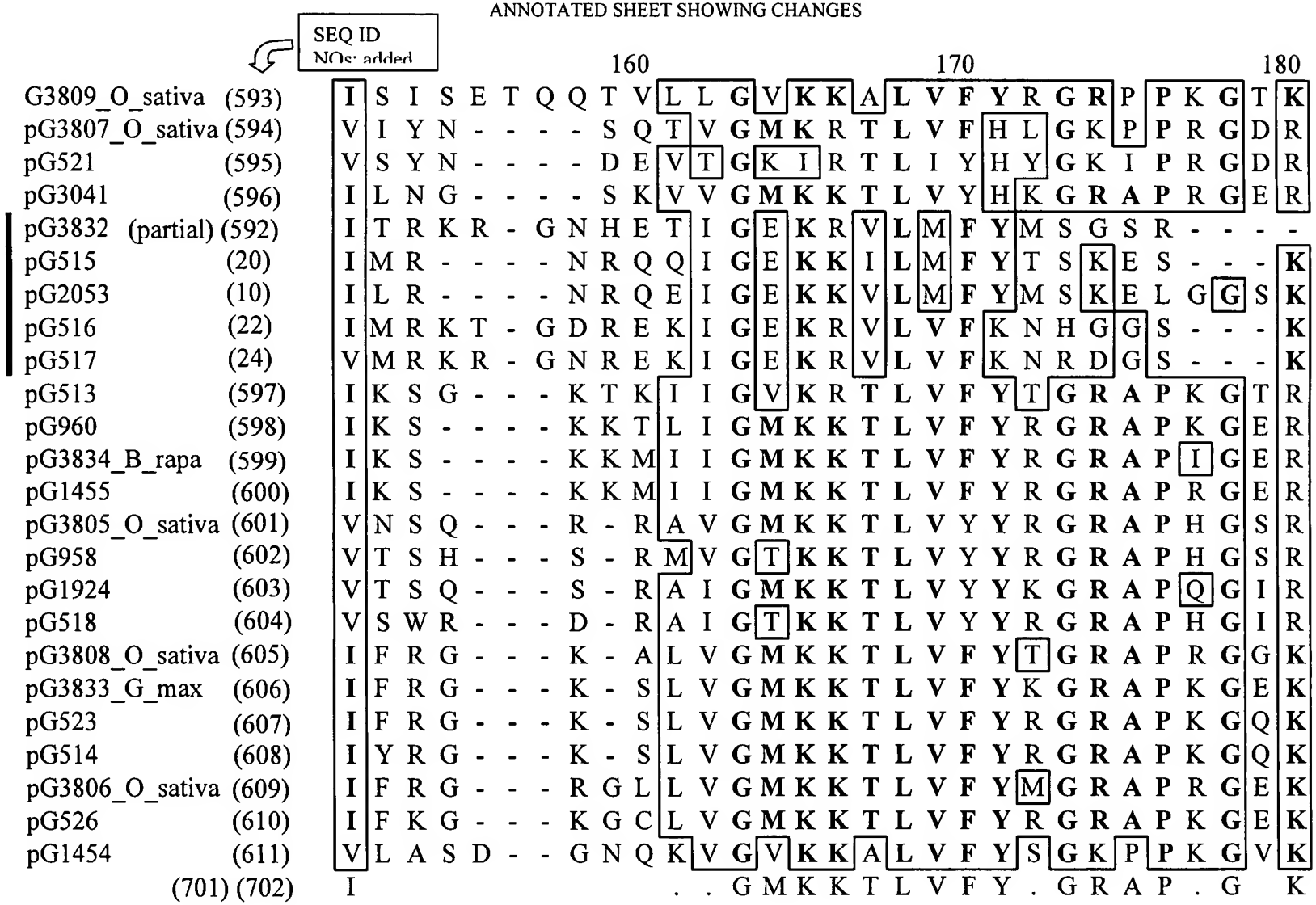
pG3807_O_sativa (594) C P R D R K Y S S G S R T N R S T E A G Y W K A T G K D R P
pG521 (595) C P R E K K Y P K G G K A N R S T E C G Y W K T T G R D R D
pG3041 (596) S M L D K K Y R N G S K T N R A T E M G Y W K T T G K D R E
pG3832 (partial) (592) G R K E S R Y N R G E R Q K R K T K S G Y W K K T G N T L P
pG515 (20) R P K E N K Y G R G D Q Q M R K T K S G F W K S T G R P K P
pG2053 (10) S P K E N K Y G R G D Q Q I R K T K S G Y W K I T G K P K P
pG516 (22) G R K E N K Y G K G D R Q I R K T K S G F W K K T G V T M D
pG517 (24) S V K E M K Y N R G D Q Q R R R T N S G F W K K T G K T M T
pG513 (597) C P L D R K Y P S G S R M N R A T V A G Y W K A T G K D R K
pG960 (598) C P R D R K Y P N G H R S N R A T D S G Y W K A T G K D R S
pG3834_B_rapa (599) C P R D R K Y P S G H R S N R A T D I G Y W K A T G K D R T
pG1455 (600) C P R D R K Y P S G H R S N R A T D I G Y W K A T G K D R T
pG3805_O_sativa (601) S P R D R K Y P N G S R T N R A T K A G Y W K A T G K D R K
pG958 (602) S P R D R K Y P N G S R T N R A T K A G Y W K A T G K D R K
pG1924 (603) G P R D R K Y P N G F R T N R A T R G G Y W K S T G K D R R
pG518 (604 S P R D R K Y P N G S R T N R A T K G G Y W K A T G K D R R
pG3808_O_sativa (605) C V K D R K Y P T G L R T N R A T E S G Y W K A T G K D R E
pG3833_G_max (606) C V R D R K Y P T G L R T N R A T E S G Y W K A T G K D K E
pG523 (607) C V R D R K Y P T G L R T N R A T Q A G Y W K A T G K D K E
pG514 (608) C V R D R K Y P T G L R T N R A T E A G Y W K A T G K D K E
pG3806_O_sativa (609) C H K D R K Y P T G M R T N R A T A S G Y W K A T G K D K E
pG526 (610) C Q R D R K Y P T G M R T N R A T E S G Y W K A T G K D K E
pG1454 (611) S P R D R K Y P N G A R P N R A A T S G Y W K A T G T D K P
(698) (699) (700) C P R D R K Y P G R T N R A T S G Y W K A T G K D R

FIG. 27E


SEQ ID NOs: added
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180
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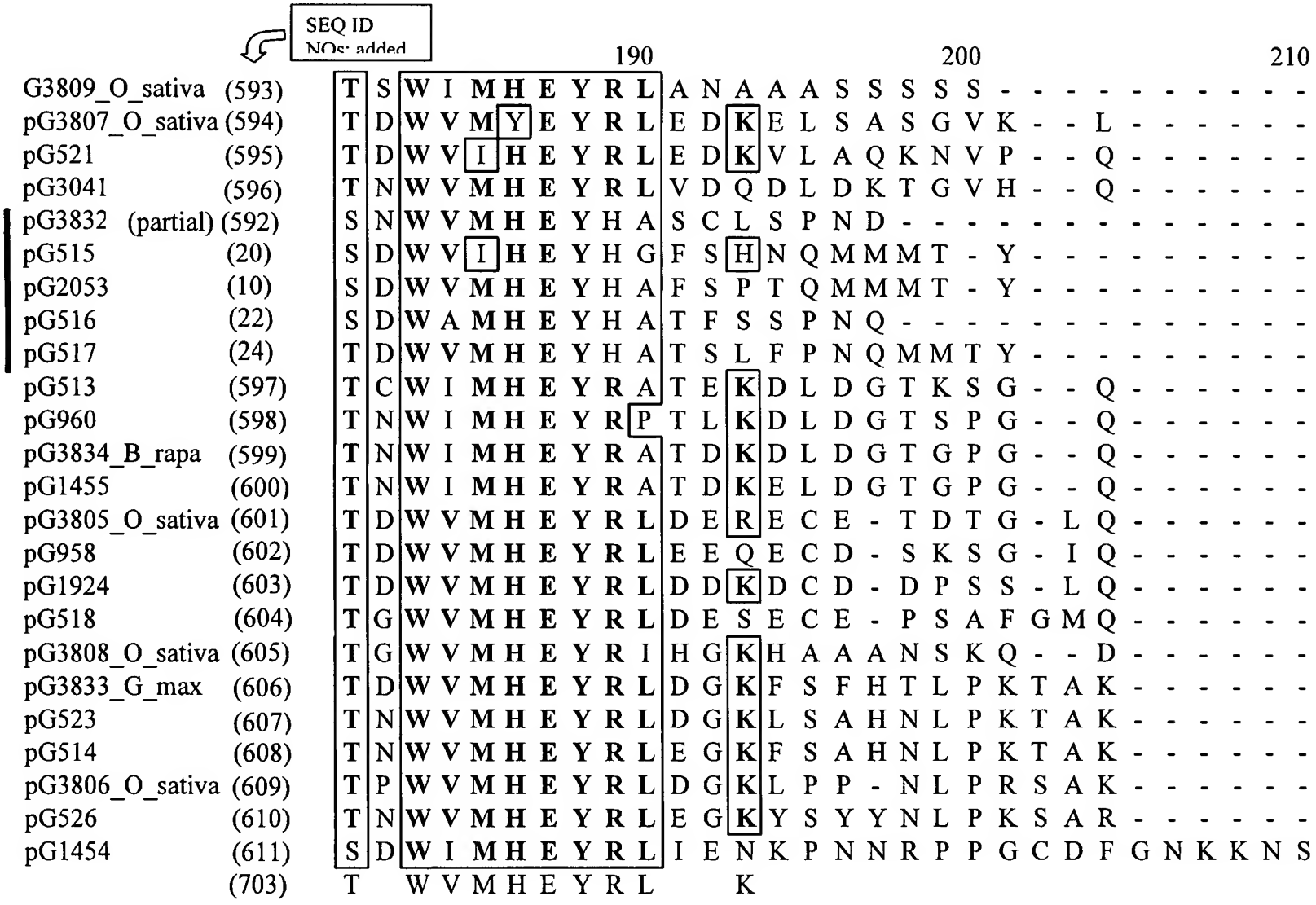
pG3807_O_sativa (594) V I Y N - - - - S Q T V G M K R T L V F H L G K P P R G D R
pG521 (595) V S Y N - - - - D E V T G K I R T L I Y H Y G K I P R G D R
pG3041 (596) I L N G - - - - S K V V G M K K T L V Y H K G R A P R G E R
pG3832 (partial) (592) I T R K R - G N H E T I G E K R V L M F Y M S G S R - - - -
pG515 (20) I M R - - - - N R Q Q I G E K K I L M F Y T S K E S - - - K
pG2053 (10) I L R - - - - N R Q E I G E K K V L M F Y M S K E L G G S K
pG516 (22) I M R K T - G D R E K I G E K R V L V F K N H G G S - - - K
pG517 (24) V M R K R - G N R E K I G E K R V L V F K N R D G S - - - K
pG513 (597) I K S G - - - K T K I I G V K R T L V F Y T G R A P K G T R
pG960 (598) I K S - - - - K K T L I G M K K T L V F Y R G R A P K G E R
pG3834_B_rapa (599) I K S - - - - K K M I I G M K K T L V F Y R G R A P I G E R
pG1455 (600) I K S - - - - K K M I I G M K K T L V F Y R G R A P R G E R
pG3805_O_sativa (601) V N S Q - - - R - R A V G M K K T L V Y Y R G R A P H G S R
pG958 (602) V T S H - - - S - R M V G T K K T L V Y Y R G R A P H G S R
pG1924 (603) V T S Q - - - S - R A I G M K K T L V Y Y K G R A P Q G I R
pG518 (604) V S W R - - - D - R A I G T K K T L V Y Y R G R A P H G I R
pG3808_O_sativa (605) I F R G - - - K - A L V G M K K T L V F Y T G R A P R G G K
pG3833_G_max (606) I F R G - - - K - S L V G M K K T L V F Y K G R A P K G E K
pG523 (607) I F R G - - - K - S L V G M K K T L V F Y R G R A P K G Q K
pG514 (608) I Y R G - - - K - S L V G M K K T L V F Y R G R A P K G Q K
pG3806_O_sativa (609) I F R G - - - R G L L V G M K K T L V F Y M G R A P R G E K
pG526 (610) I F K G - - - K G C L V G M K K T L V F Y R G R A P K G E K
pG1454 (611) V L A S D - - G N Q K V G V K K A L V F Y S G K P P K G V K
(701) (702) I . . G M K K T L V F Y . G R A P . G K

FIG. 27F


SEQ ID NOs: added
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200
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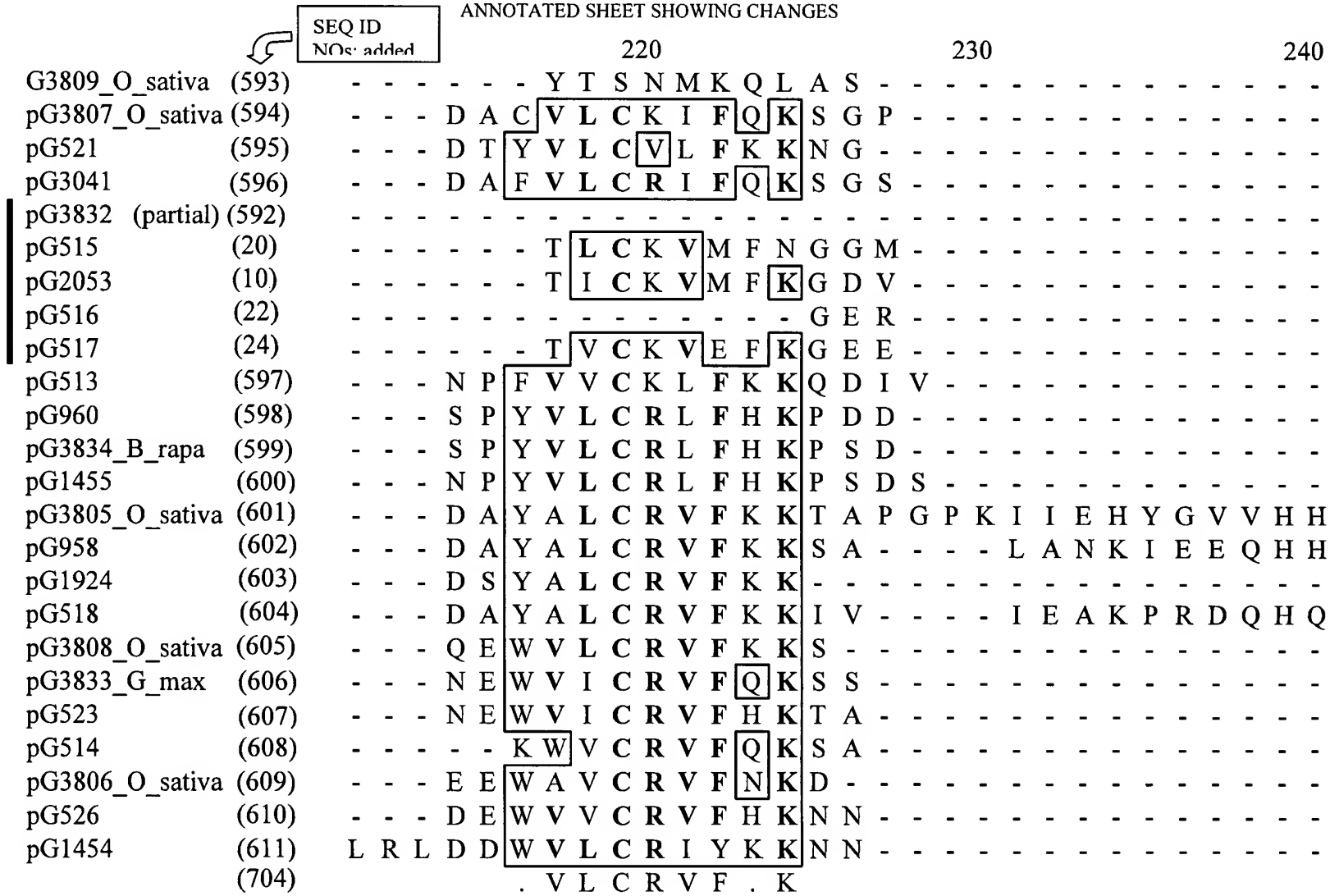
G3809_O_sativa (593) T S W I M H E Y R L A N A A A S S S S S - - - - - - - - - - -
pG3807_O_sativa (594) T D W V M Y E Y R L E D K E L S A S G V K - - L - - - - - - -
pG521 (595) T D W V I H E Y R L E D K V L A Q K N V P - - Q - - - - - - -
pG3041 (596) T N W V M H E Y R L V D Q D L D K T G V H - - Q - - - - - - -
pG3832 (partial) (592) S N W V M H E Y H A S C L S P N D - - - - - - - - - - - - -
pG515 (20) S D W V I H E Y H G F S H N Q M M M T - Y - - - - - - - - -
pG2053 (10) S D W V M H E Y H A F S P T Q M M M T - Y - - - - - - - - -
pG516 (22) S D W A M H E Y H A T F S S P N Q - - - - - - - - - - - - -
pG517 (24) T D W V M H E Y H A T S L F P N Q M M T Y - - - - - - - - -
pG513 (597) T C W I M H E Y R A T E K D L D G T K S G - - Q - - - - - - -
pG960 (598) T N W I M H E Y R P T L K D L D G T S P G - - Q - - - - - - -
pG3834_B_rapa (599) T N W I M H E Y R A T D K D L D G T G P G - - Q - - - - - - -
pG1455 (600) T N W I M H E Y R A T D K E L D G T G P G - - Q - - - - - - -
pG3805_O_sativa (601) T D W V M H E Y R L D E R E C E - T D T G - L Q - - - - - - -
pG958 (602) T D W V M H E Y R L E E Q E C D - S K S G - I Q - - - - - - -
pG1924 (603) T D W V M H E Y R L D D K D C D - D P S S - L Q - - - - - - -
pG518 (604) T G W V M H E Y R L D E S E C E - P S A F G M Q - - - - - - -
pG3808_O_sativa (605) T G W V M H E Y R I H G K H A A A N S K Q - - D - - - - - - -
pG3833_G_max (606) T D W V M H E Y R L D G K F S F H T L P K T A K - - - - - - -
pG523 (607) T N W V M H E Y R L D G K L S A H N L P K T A K - - - - - - -
pG514 (608) T N W V M H E Y R L E G K F S A H N L P K T A K - - - - - - -
pG3806_O_sativa (609) T P W V M H E Y R L D G K L P P - N L P R S A K - - - - - - -
pG526 (610) T N W V M H E Y R L E G K Y S Y Y N L P K S A R - - - - - - -
pG1454 (611) S D W I M H E Y R L I E N K P N N R P P G C D F G N K K N S
(703) T W V M H E Y R L K

FIG. 27G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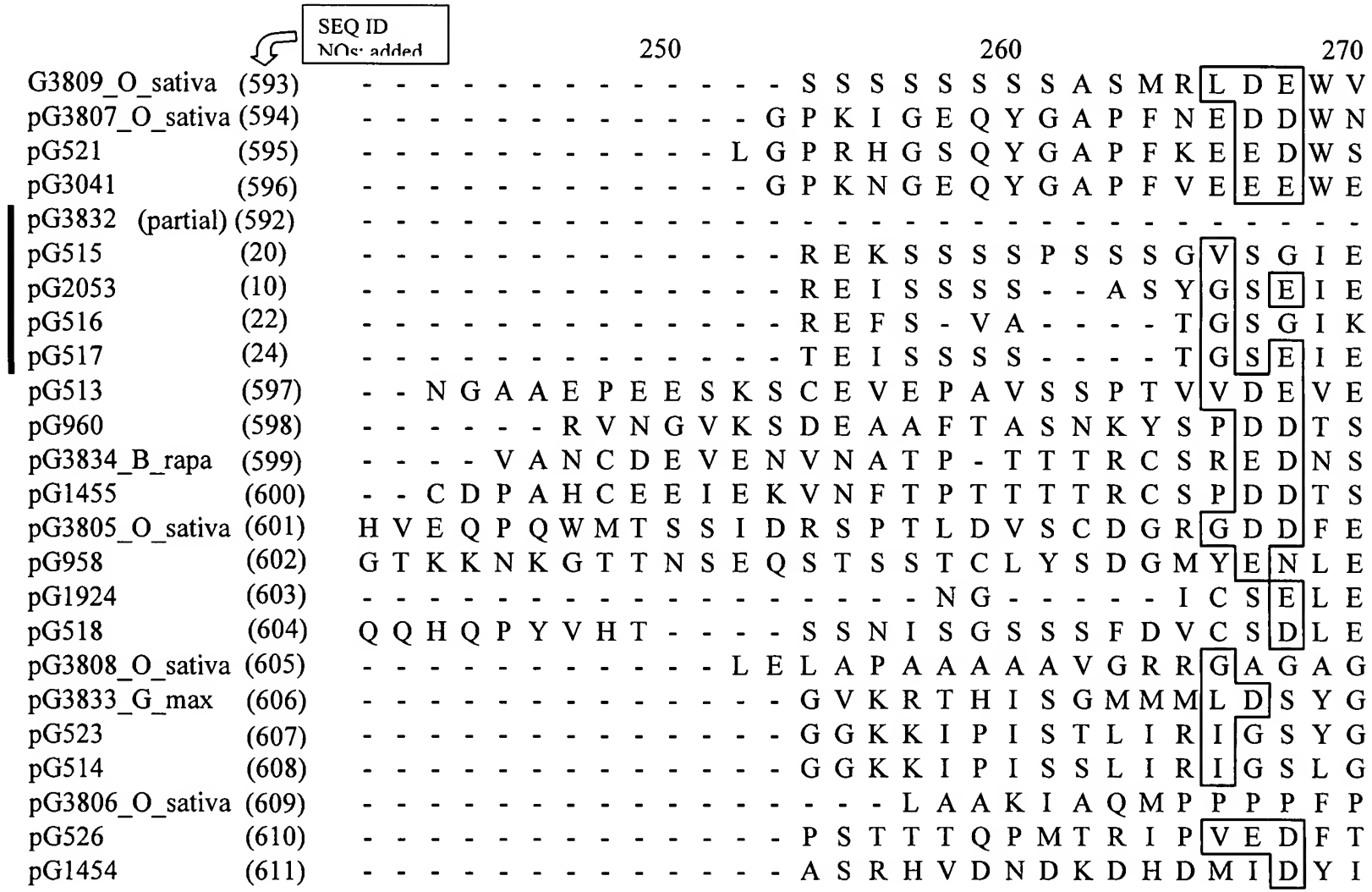
pG521 (595)
pG3041 (596)
pG3832 (partial) (592)
pG515 (20)
pG2053 (10)
pG516 (22)
pG517 (24)
pG513 (597)
pG960 (598)
pG3834_B_rapa (599)
pG1455 (600)
pG3805_O_sativa (601)
pG958 (602)
pG1924 (603)
pG518 (604)
pG3808_O_sativa (605)
pG3833_G_max (606)
pG523 (607)
pG514 (608)
pG3806_O_sativa (609)
pG526 (610)
pG1454 (611)
(704)

FIG. 27H


SEQ ID NOs: added
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pG3807_O_sativa (594) - - - - - - - - - - - - - - - - G P K I G E Q Y G A P F N E D D W N
pG521 (595) - - - - - - - - - - - - - - L G P R H G S Q Y G A P F K E E D W S
pG3041 (596) - - - - - - - - - - - - - - G P K N G E Q Y G A P F V E E E W E
pG3832 (partial) (592) -
pG515 (20) - - - - - - - - - - - - - - - - R E K S S S S P S S S G V S G I E
pG2053 (10) - - - - - - - - - - - - - - - - R E I S S S S - - A S Y G S E I E
pG516 (22) - - - - - - - - - - - - - - - - R E F S - V A - - - - T G S G I K
pG517 (24) - - - - - - - - - - - - - - - - T E I S S S S - - - - T G S E I E
pG513 (597) - - N G A A E P E E S K S C E V E P A V S S P T V V D E V E
pG960 (598) - - - - - - - R V N G V K S D E A A F T A S N K Y S P D D T S
pG3834_B_rapa (599) - - - - V A N C D E V E N V N A T P - T T T R C S R E D N S
pG1455 (600) - - C D P A H C E E I E K V N F T P T T T T R C S P D D T S
pG3805_O_sativa (601) H V E Q P Q W M T S S I D R S P T L D V S C D G R G D D F E
pG958 (602) G T K K N K G T T N S E Q S T S S T C L Y S D G M Y E N L E
pG1924 (603) - N G - - - - - I C S E L E
pG518 (604) Q Q H Q P Y V H T - - - - S S N I S G S S S F D V C S D L E
pG3808_O_sativa (605) - - - - - - - - - - - - - - L E L A P A A A A A A V G R R G A G A G
pG3833_G_max (606) - - - - - - - - - - - - - - - - G V K R T H I S G M M M L D S Y G
pG523 (607) - - - - - - - - - - - - - - - - G G K K I P I S T L I R I G S Y G
pG514 (608) - - - - - - - - - - - - - - - - G G K K I P I S S L I R I G S L G
pG3806_O_sativa (609) - L A A K I A Q M P P P P F P
pG526 (610) - - - - - - - - - - - - - - - - P S T T T Q P M T R I P V E D F T
pG1454 (611) - - - - - - - - - - - - - - - - A S R H V D N D K D H D M I D Y I

FIG. 27I

SEQ ID NOs: added

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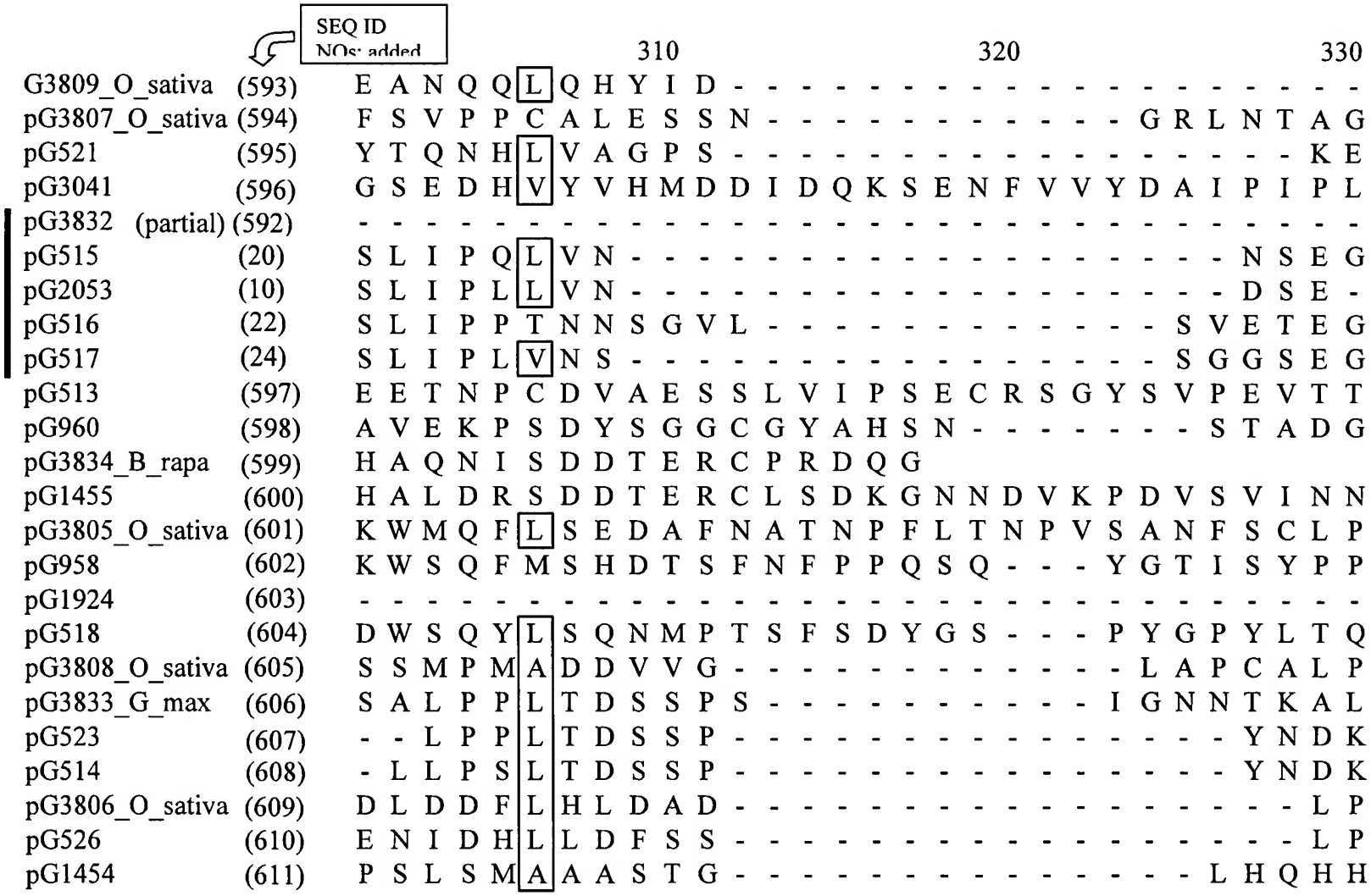
                                            280                 290                 300
G3809_O_sativa         (593)  L C R I Y K - - - - - - - - - - - - - - - - - - - - - - K K
pG3807_O_sativa        (594)  E A N G E L S S - - - - - - - - - - - - - - - - - - - - F A
pG521                  (595)  D K E E E - - - - - - - - - - - - - - - - - - - - - - - - -
pG3041                 (596)  E E D D M T F V P D - - - - - - - - - - - - - - - - Q E D L
pG3832 (partial)       (592)  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG515                  (20)   Q S R R D - - - - - - - - - - - - - - - - - - - - - - - - -
pG2053                 (10)   Q S R - D - - - - - - - - - - - - - - - - - - - - - - - - -
pG516                  (22)   H T H - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG517                  (24)   Q I H - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG513                  (597)  M S E V S P V F P - - - - - - - - - - - - - - - - - - - K T
pG960                  (598)  S D L V Q E T P S S - - - - - - - - - - - - - - - - - - D A
pG3834_B_rapa          (599)  S E M V Q E T D T S - - - - - - - - - - - - - - - - - - R V
pG1455                 (600)  S E M V Q E T A T S - - - - - - - - - - - - - - - - - - G V
pG3805_O_sativa        (601)  S S S F S F P T E T P M D S M H G G F G M Q M S A P H E D G
pG958                  (602)  N S G Y P V S P E T G G L T Q L G N N S S S D M E T I E N -
pG1924                 (603)  S E R - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG518                  (604)  I S S N T P Y N T A A H I Q P R F G N A N A - - I S D H D -
pG3808_O_sativa        (605)  T D V G P - - - - - - - - - - - - - - - - - - - - - - - - -
pG3833_G_max           (606)  N E M V Y - - - - - - - - - - - - - - - - - - - - - - - S S
pG523                  (607)  T G S S - - - - - - - - - - - - - - - - - - - - - - - - - -
pG514                  (608)  T D F N P - - - - - - - - - - - - - - - - - - - - - - - S -
pG3806_O_sativa        (609)  R N D S F - - - - - - - - - - - - - - - - - - - - - - - D L
pG526                  (610)  R M D - - - - - - - - - - - - - - - - - - - - - - - - - S L
pG1454                 (611)  F R K I P - - - - - - - - - - - - - - - - - - - - - - - - -
```

FIG. 27J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330
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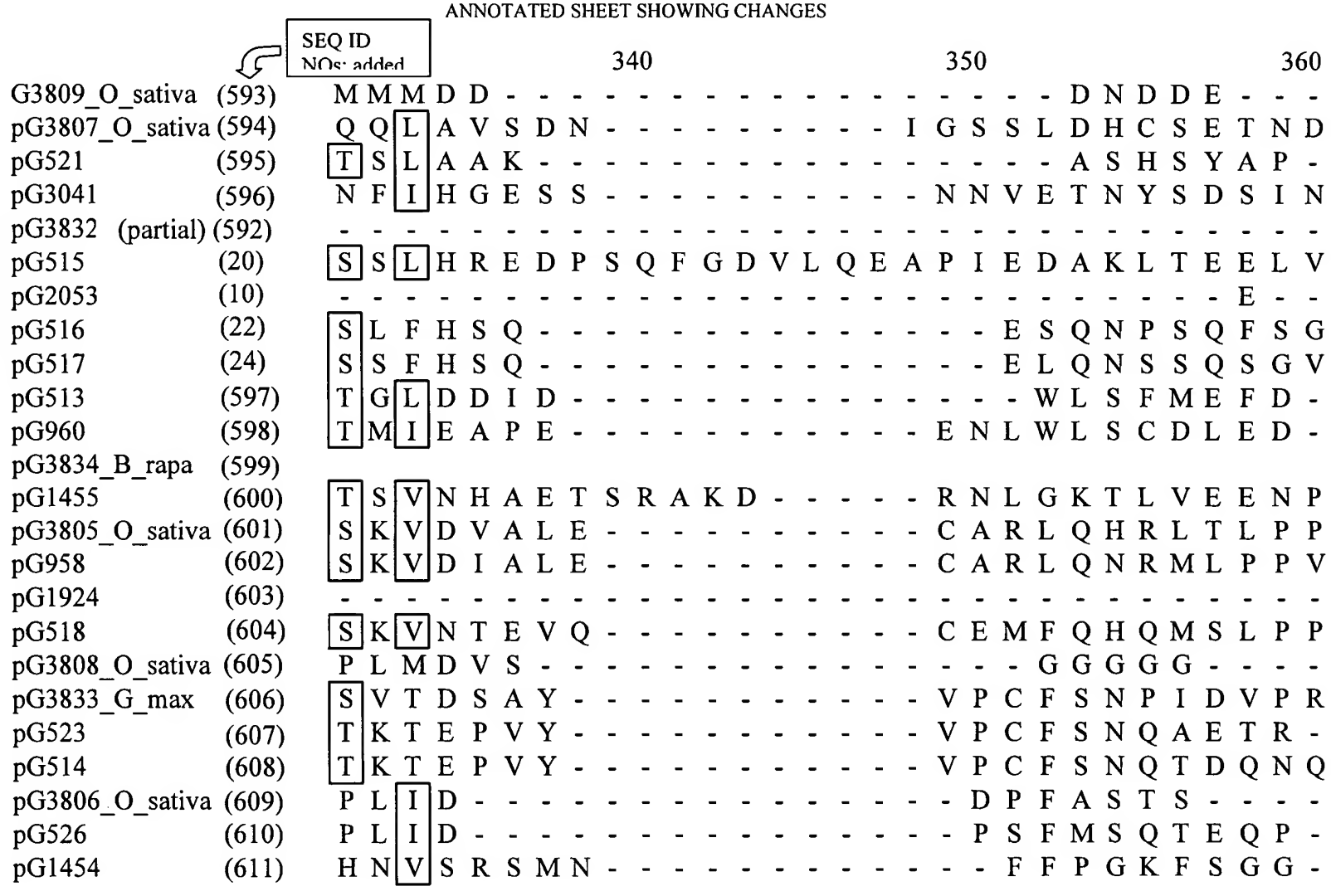
pG3807_O_sativa (594) F S V P P C A L E S S N - - - - - - - - - - - - G R L N T A G
pG521 (595) Y T Q N H L V A G P S - - - - - - - - - - - - - - - - - - K E
pG3041 (596) G S E D H V Y V H M D D I D Q K S E N F V V Y D A I P I P L
pG3832 (partial) (592) -
pG515 (20) S L I P Q L V N - - - - - - - - - - - - - - - - - - N S E G
pG2053 (10) S L I P L L V N - - - - - - - - - - - - - - - - - - D S E -
pG516 (22) S L I P P T N N S G V L - - - - - - - - - - - - - - S V E T E G
pG517 (24) S L I P L V N S - - - - - - - - - - - - - - - - - - S G G S E G
pG513 (597) E E T N P C D V A E S S L V I P S E C R S G Y S V P E V T T
pG960 (598) A V E K P S D Y S G G C G Y A H S N - - - - - - - - S T A D G
pG3834_B_rapa (599) H A Q N I S D D T E R C P R D Q G
pG1455 (600) H A L D R S D D T E R C L S D K G N N D V K P D V S V I N N
pG3805_O_sativa (601) K W M Q F L S E D A F N A T N P F L T N P V S A N F S C L P
pG958 (602) K W S Q F M S H D T S F N F P P Q S Q - - - Y G T I S Y P P
pG1924 (603) -
pG518 (604) D W S Q Y L S Q N M P T S F S D Y G S - - - P Y G P Y L T Q
pG3808_O_sativa (605) S S M P M A D D V V G - - - - - - - - - - - - - L A P C A L P
pG3833_G_max (606) S A L P P L T D S S P S - - - - - - - - - - - - I G N N T K A L
pG523 (607) - - L P P L T D S S P - - - - - - - - - - - - - - - - Y N D K
pG514 (608) - L L P S L T D S S P - - - - - - - - - - - - - - - - Y N D K
pG3806_O_sativa (609) D L D D F L H L D A D - - - - - - - - - - - - - - - - - - L P
pG526 (610) E N I D H L L D F S S - - - - - - - - - - - - - - - - - - L P
pG1454 (611) P S L S M A A A S T G - - - - - - - - - - - - - - - - L H Q H H

FIG. 27K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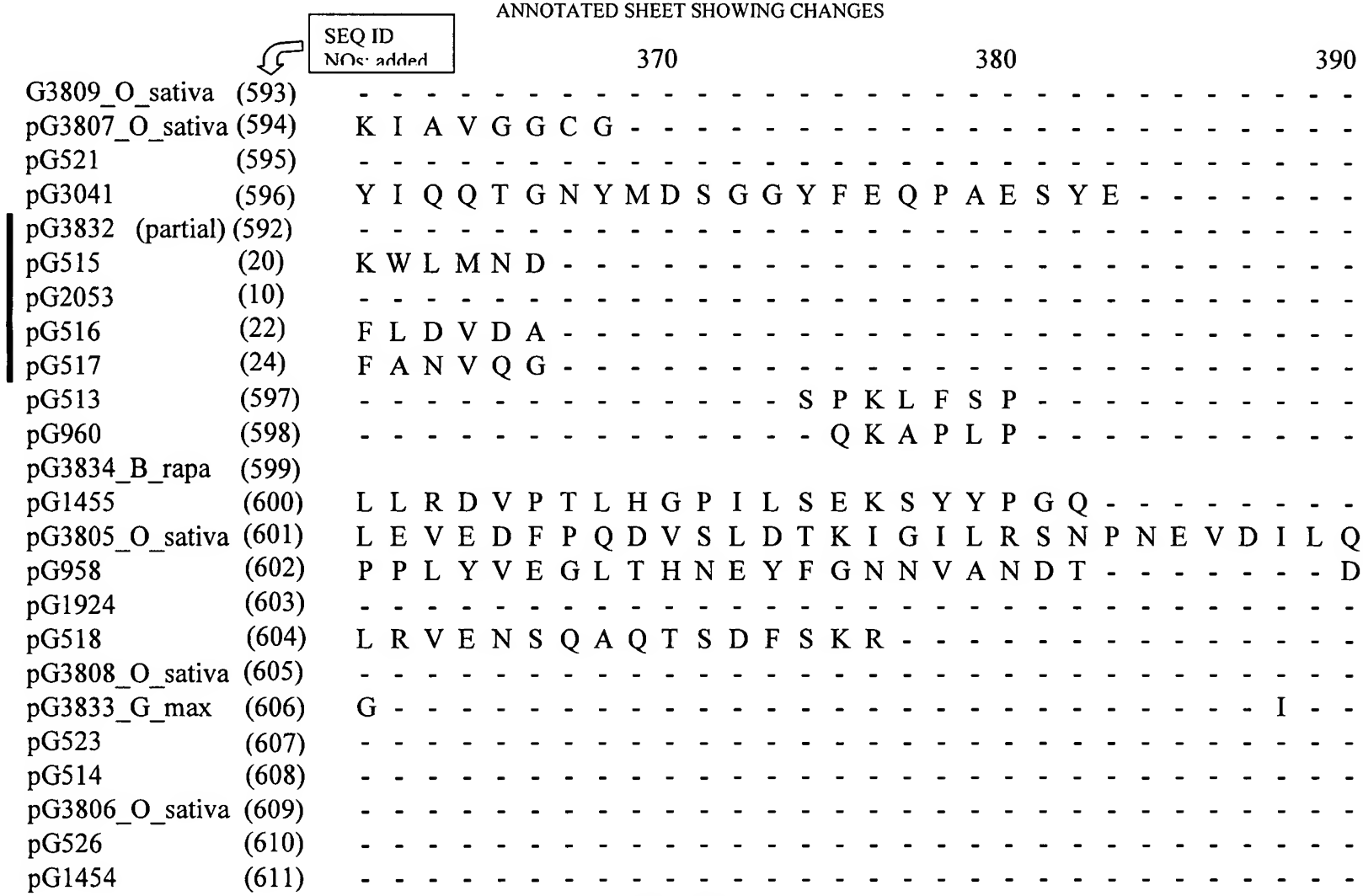
pG3807_O_sativa (594) Q Q L A V S D N - - - - - - - - - - I G S S L D H C S E T N D
pG521 (595) T S L A A K - - - - - - - - - - - - - - - - - - A S H S Y A P -
pG3041 (596) N F I H G E S S - - - - - - - - - - N N V E T N Y S D S I N
pG3832 (partial) (592) -
pG515 (20) S S L H R E D P S Q F G D V L Q E A P I E D A K L T E E L V
pG2053 (10) - E - -
pG516 (22) S L F H S Q - - - - - - - - - - - - - - - - E S Q N P S Q F S G
pG517 (24) S S F H S Q - - - - - - - - - - - - - - - - E L Q N S S Q S G V
pG513 (597) T G L D D I D - - - - - - - - - - - - - - - - W L S F M E F D -
pG960 (598) T M I E A P E - - - - - - - - - - - - - - E N L W L S C D L E D -
pG3834_B_rapa (599)
pG1455 (600) T S V N H A E T S R A K D - - - - - - R N L G K T L V E E N P
pG3805_O_sativa (601) S K V D V A L E - - - - - - - - - - - C A R L Q H R L T L P P
pG958 (602) S K V D I A L E - - - - - - - - - - - C A R L Q N R M L P P V
pG1924 (603) -
pG518 (604) S K V N T E V Q - - - - - - - - - - - C E M F Q H Q M S L P P
pG3808_O_sativa (605) P L M D V S - - - - - - - - - - - - - - - - - G G G G G - - - -
pG3833_G_max (606) S V T D S A Y - - - - - - - - - - - - - V P C F S N P I D V P R
pG523 (607) T K T E P V Y - - - - - - - - - - - - - V P C F S N Q A E T R -
pG514 (608) T K T E P V Y - - - - - - - - - - - - - V P C F S N Q T D Q N Q
pG3806_O_sativa (609) P L I D - - - - - - - - - - - - - - - - D P F A S T S - - - -
pG526 (610) P L I D - - - - - - - - - - - - - - - - - P S F M S Q T E Q P -
pG1454 (611) H N V S R S M N - - - - - - - - - - - - - F F P G K F S G G -

FIG. 27L


SEQ ID NOs: added
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380
390
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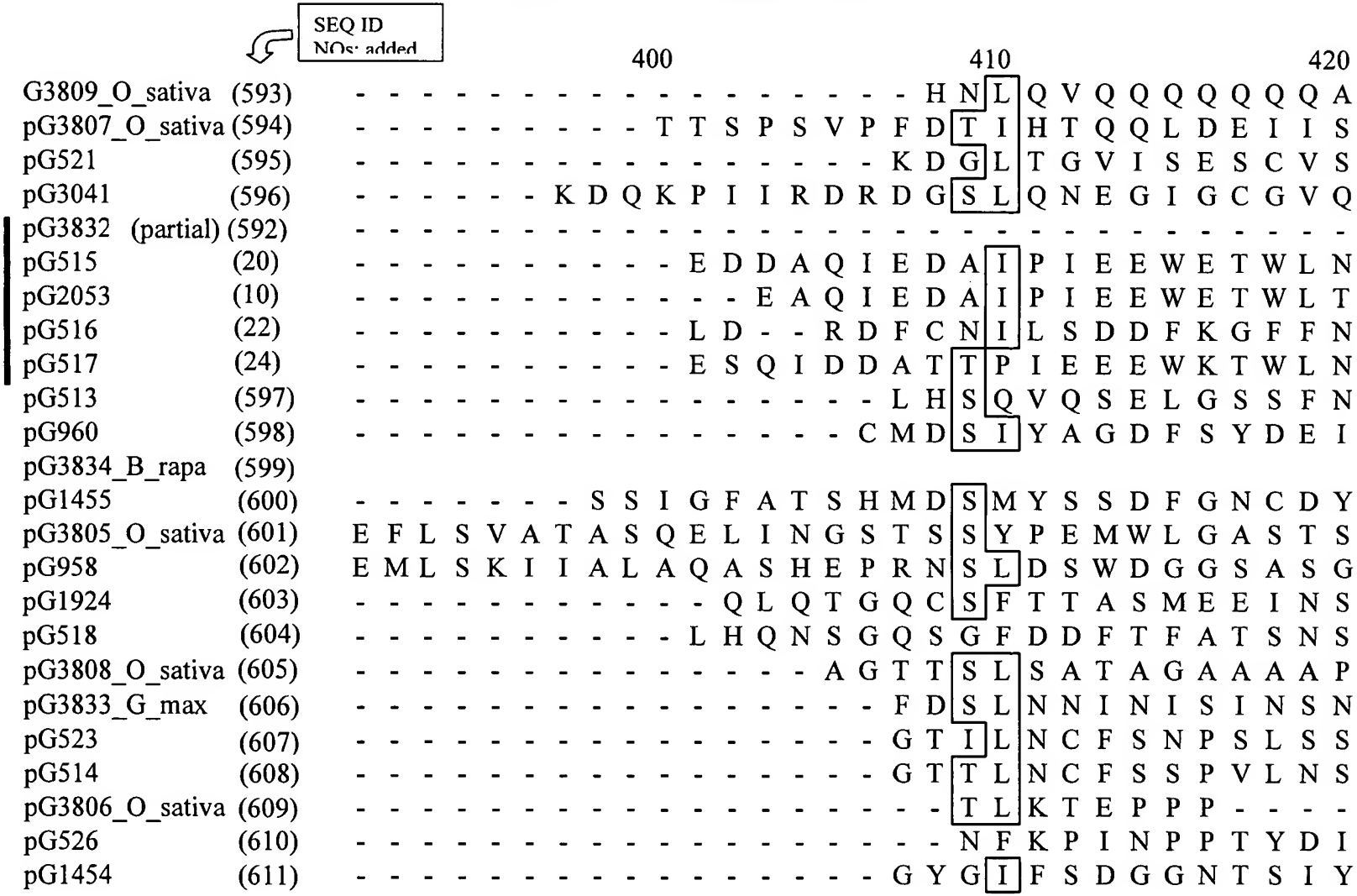
pG3807_O_sativa (594) K I A V G G C G
pG521 (595)
pG3041 (596) Y I Q Q T G N Y M D S G G Y F E Q P A E S Y E
pG3832 (partial) (592)
pG515 (20) K W L M N D
pG2053 (10)
pG516 (22) F L D V D A
pG517 (24) F A N V Q G
pG513 (597) S P K L F S P
pG960 (598) Q K A P L P
pG3834_B_rapa (599)
pG1455 (600) L L R D V P T L H G P I L S E K S Y Y P G Q
pG3805_O_sativa (601) L E V E D F P Q D V S L D T K I G I L R S N P N E V D I L Q
pG958 (602) P P L Y V E G L T H N E Y F G N N V A N D T D
pG1924 (603)
pG518 (604) L R V E N S Q A Q T S D F S K R
pG3808_O_sativa (605)
pG3833_G_max (606) G I
pG523 (607)
pG514 (608)
pG3806_O_sativa (609)
pG526 (610)
pG1454 (611)

FIG. 27M


SEQ ID NOs: added
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410
420
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pG3807_O_sativa (594) - - - - - - - - - - T T S P S V P F D T I H T Q Q L D E I I S
pG521 (595) - K D G L T G V I S E S C V S
pG3041 (596) - - - - - - - K D Q K P I I R D R D G S L Q N E G I G C G V Q
pG3832 (partial) (592) -
pG515 (20) - - - - - - - - - - - E D D A Q I E D A I P I E E W E T W L N
pG2053 (10) - - - - - - - - - - - - - - E A Q I E D A I P I E E W E T W L T
pG516 (22) - - - - - - - - - - - L D - - R D F C N I L S D D F K G F F N
pG517 (24) - - - - - - - - - - - E S Q I D D A T T P I E E E W K T W L N
pG513 (597) - L H S Q V Q S E L G S S F N
pG960 (598) - C M D S I Y A G D F S Y D E I
pG3834_B_rapa (599)
pG1455 (600) - - - - - - - - S S I G F A T S H M D S M Y S S D F G N C D Y
pG3805_O_sativa (601) E F L S V A T A S Q E L I N G S T S S Y P E M W L G A S T S
pG958 (602) E M L S K I I A L A Q A S H E P R N S L D S W D G G S A S G
pG1924 (603) - - - - - - - - - - - - - Q L Q T G Q C S F T T A S M E E I N S
pG518 (604) - - - - - - - - - - - - L H Q N S G Q S G F D D F T F A T S N S
pG3808_O_sativa (605) - - - - - - - - - - - - - - - - - - - A G T T S L S A T A G A A A A P
pG3833_G_max (606) - F D S L N N I N I S I N S N
pG523 (607) - G T I L N C F S N P S L S S
pG514 (608) - G T T L N C F S S P V L N S
pG3806_O_sativa (609) - T L K T E P P P - - - -
pG526 (610) - N F K P I N P P T Y D I
pG1454 (611) - G Y G I F S D G G N T S I Y

FIG. 27N

SEQ ID NOs: added

```
                                  430                 440                 450
G3809_O_sativa      (593)  Q S H R M P R - - - - - - - - - - - - - - - - - - - - - P P
pG3807_O_sativa     (594)  C F S T D L L N S V S - - - - - - - - - - - - - - - - R D G
pG521               (595)  D V P P L T A T - - - - - - - - - - - - - - - - - - - V L P
pG3041              (596)  D K H S E T L Q S S D - - - - - - - - - - - N I F G T D T S
pG3832 (partial)    (592)  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG515               (20)   D I D D A K E K - - - - - - - - - - - - - - - - - - - S I M
pG2053              (10)   D D G V D E Q V N - - - - - - - - - - - - - - - - - - H I M
pG516               (22)   D D - D E Q S K - - - - - - - - - - - - - - - - - - - - I V
pG517               (24)   N D G D E Q R N - - - - - - - - - - - - - - - - - - - - I M
pG513               (597)  G L Q S E S - - - - - - - - - - - - - - - - - - - - - - - -
pG960               (598)  G F Q F Q D G T S - - - - - - - - - - - - - E P D V S L T E
pG3834_B_rapa       (599)
pG1455              (600)  G L H F Q D G A S - - - - - - - - - - - - - E Q D A S L T D
pG3805_O_sativa     (601)  S A S Y V N E L S S L V E M G G V G T S N H H E S A R L Q V
pG958               (602)  N F H G D F N Y S G E K V S C - - - - - - - L E A N V E A V
pG1924              (603)  N - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG518               (604)  N Q F Y N S N V D - - - - - - - - - - - - - - D H L I H I G
pG3808_O_sativa     (605)  P A A H V T C F S - - - - - - - - - - - - - - - - - - - - N
pG3833_G_max        (606)  T L Y G V S S - - - - - - - - - - - - - - - - - - - - N H S
pG523               (607)  I Q P D F L Q - - - - - - - - - - - - - - - - - - - - M I P
pG514               (608)  I Q A D I F H - - - - - - - - - - - - - - - - - - - - R I P
pG3806_O_sativa     (609)  - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG526               (610)  S S P I Q P H - - - - - - - - - - - - - - - - - - - - H F N
pG1454              (611)  D G G G - - - - - - - - - - - - - - - - - - - - - - - M I N
```

FIG. 27O

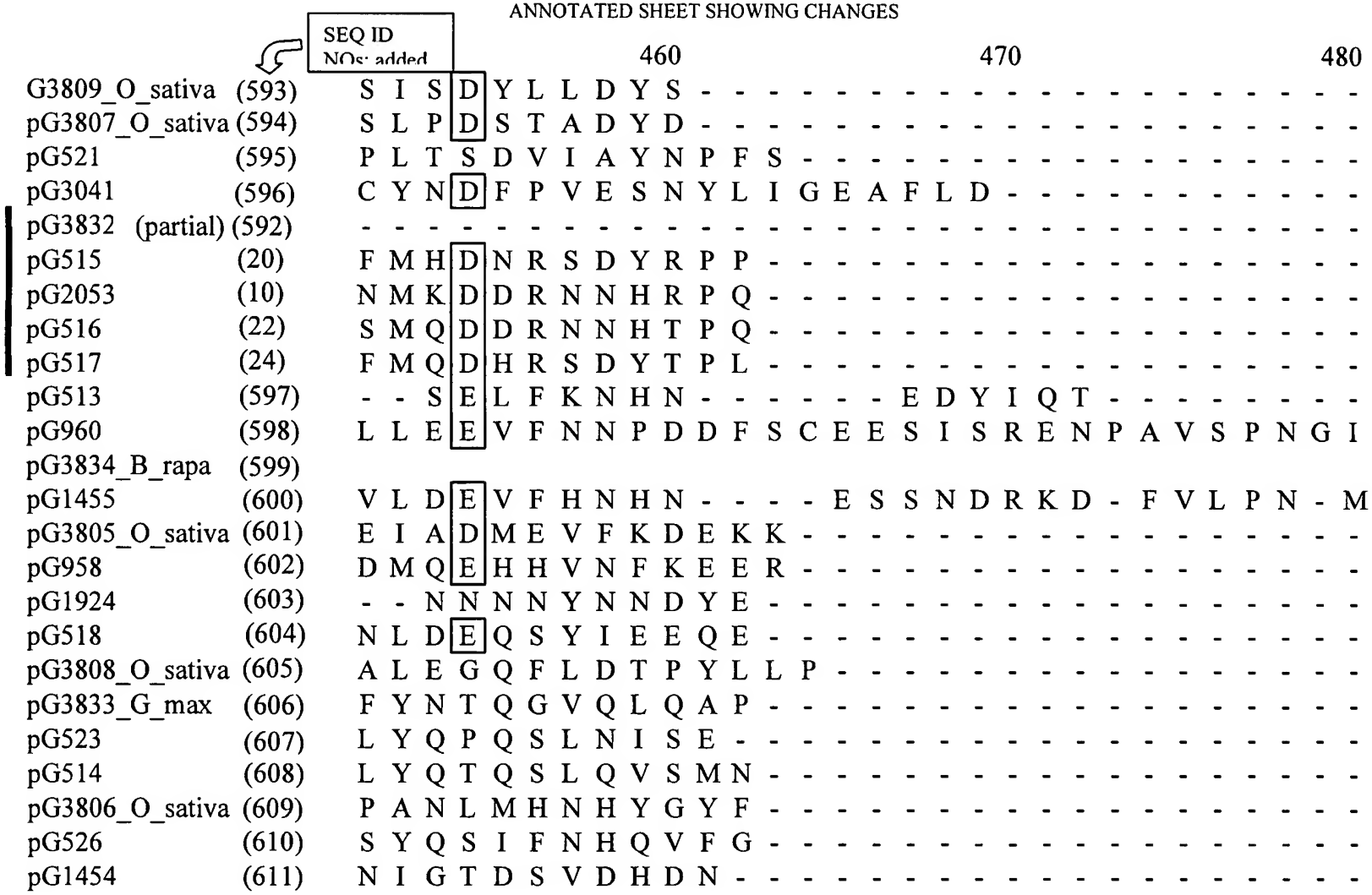
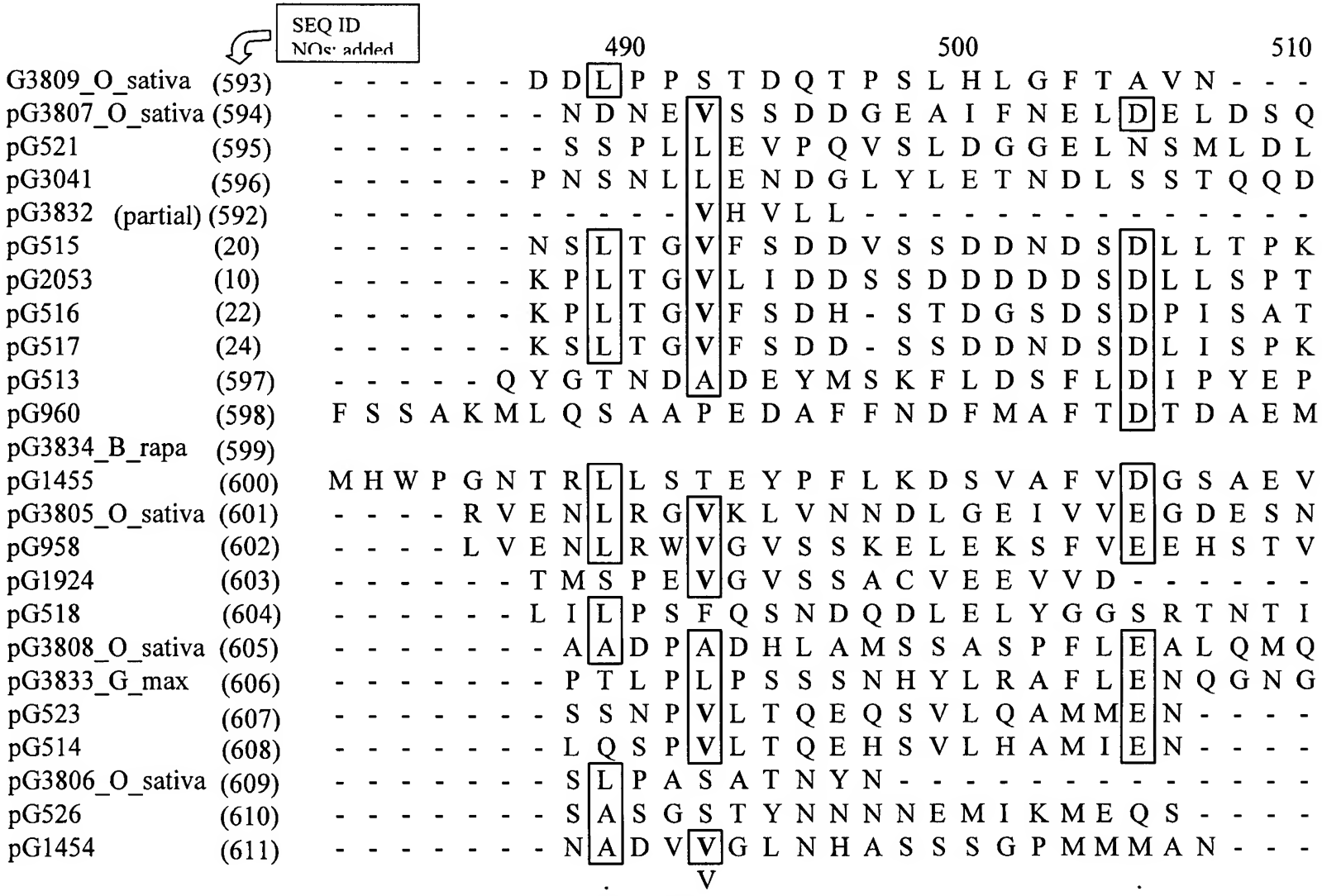

SEQ ID NOs: added
460
470
480
G3809_O_sativa (593) S I S D Y L L D Y S
pG3807_O_sativa (594) S L P D S T A D Y D
pG521 (595) P L T S D V I A Y N P F S
pG3041 (596) C Y N D F P V E S N Y L I G E A F L D
pG3832 (partial) (592)
pG515 (20) F M H D N R S D Y R P P
pG2053 (10) N M K D D R N N H R P Q
pG516 (22) S M Q D D R N N H T P Q
pG517 (24) F M Q D H R S D Y T P L
pG513 (597) S E L F K N H N E D Y I Q T
pG960 (598) L L E E V F N N P D D F S C E E S I S R E N P A V S P N G I
pG3834_B_rapa (599)
pG1455 (600) V L D E V F H N H N E S S N D R K D F V L P N M
pG3805_O_sativa (601) E I A D M E V F K D E K K
pG958 (602) D M Q E H H V N F K E E R
pG1924 (603) N N N N Y N N D Y E
pG518 (604) N L D E Q S Y I E E Q E
pG3808_O_sativa (605) A L E G Q F L D T P Y L L P
pG3833_G_max (606) F Y N T Q G V Q L Q A P
pG523 (607) L Y Q P Q S L N I S E
pG514 (608) L Y Q T Q S L Q V S M N
pG3806_O_sativa (609) P A N L M H N H Y G Y F
pG526 (610) S Y Q S I F N H Q V F G
pG1454 (611) N I G T D S V D H D N

FIG. 27P


SEQ ID NOs: added
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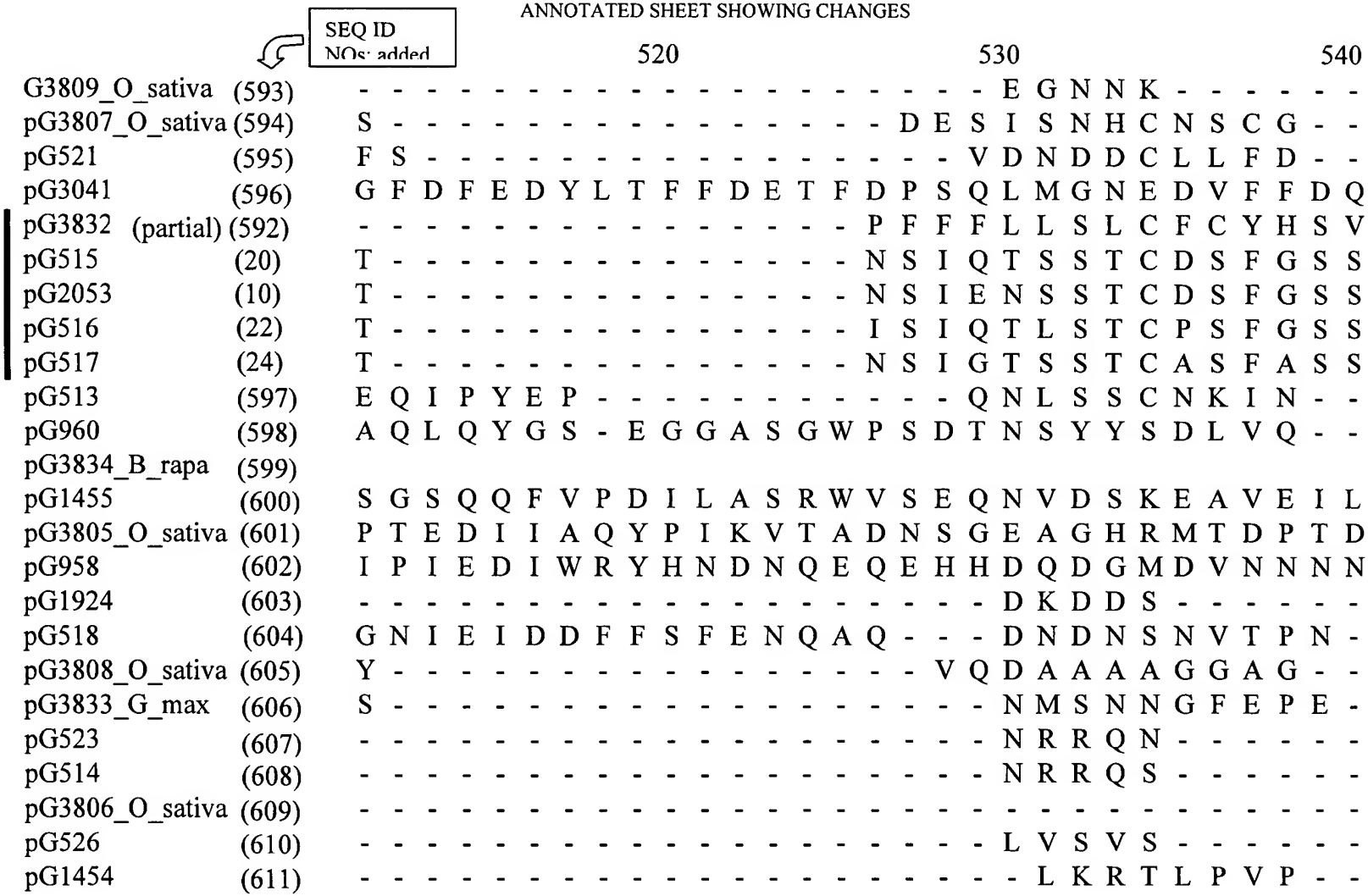
G3809_O_sativa (593) - - - - - - - D D L P P S T D Q T P S L H L G F T A V N - - -
pG3807_O_sativa (594) - - - - - - - - N D N E V S S D D G E A I F N E L D E L D S Q
pG521 (595) - - - - - - - - S S P L L E V P Q V S L D G G E L N S M L D L
pG3041 (596) - - - - - - - P N S N L L E N D G L Y L E T N D L S S T Q Q D
pG3832 (partial) (592) - - - - - - - - - - - - V H V L L - - - - - - - - - - - - - - -
pG515 (20) - - - - - - - N S L T G V F S D D V S S D D N D S D L L T P K
pG2053 (10) - - - - - - - K P L T G V L I D D S S D D D D D S D L L S P T
pG516 (22) - - - - - - - K P L T G V F S D H - S T D G S D S D P I S A T
pG517 (24) - - - - - - - K S L T G V F S D D - S S D D N D S D L I S P K
pG513 (597) - - - - - Q Y G T N D A D E Y M S K F L D S F L D I P Y E P
pG960 (598) F S S A K M L Q S A A P E D A F F N D F M A F T D T D A E M
pG3834_B_rapa (599)
pG1455 (600) M H W P G N T R L L S T E Y P F L K D S V A F V D G S A E V
pG3805_O_sativa (601) - - - - R V E N L R G V K L V N N D L G E I V V E G D E S N
pG958 (602) - - - - L V E N L R W V G V S S K E L E K S F V E E H S T V
pG1924 (603) - - - - - - T M S P E V G V S S A C V E E V V D - - - - - - -
pG518 (604) - - - - - - - L I L P S F Q S N D Q D L E L Y G G S R T N T I
pG3808_O_sativa (605) - - - - - - - - A A D P A D H L A M S S A S P F L E A L Q M Q
pG3833_G_max (606) - - - - - - - - P T L P L P S S S N H Y L R A F L E N Q G N G
pG523 (607) - - - - - - - - S S N P V L T Q E Q S V L Q A M M E N - - - -
pG514 (608) - - - - - - - - L Q S P V L T Q E H S V L H A M I E N - - - -
pG3806_O_sativa (609) - - - - - - - - S L P A S A T N Y N - - - - - - - - - - - - - -
pG526 (610) - - - - - - - - S A S G S T Y N N N N E M I K M E Q S - - - -
pG1454 (611) - - - - - - - - N A D V V G L N H A S S S G P M M M A N - - -
V

FIG. 27Q


SEQ ID NOs: added
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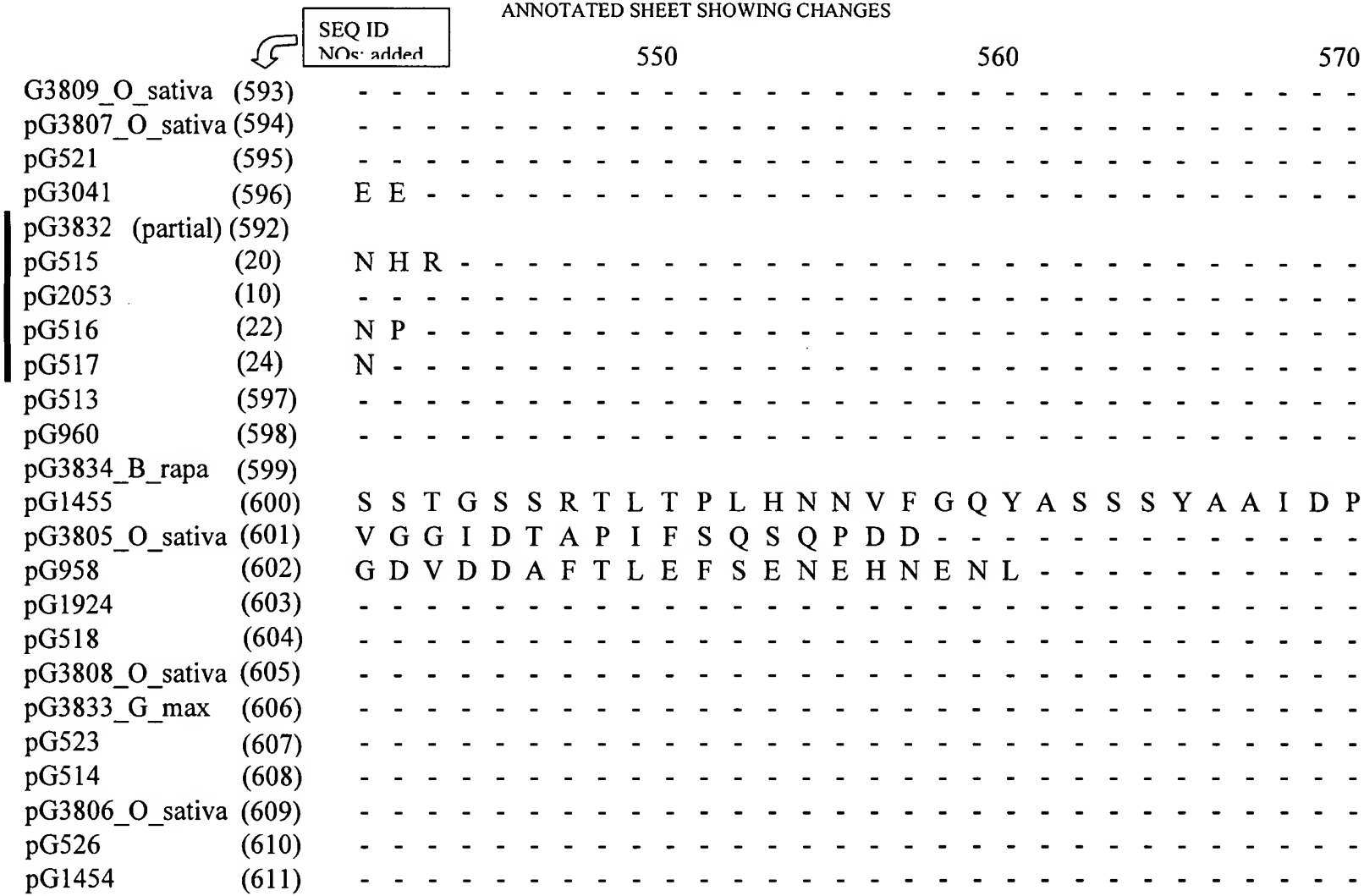
530
540
G3809_O_sativa (593) - E G N N K - - - - - - -
pG3807_O_sativa (594) S - - - - - - - - - - - - - - - - - - D E S I S N H C N S C G - -
pG521 (595) F S - V D N D D C L L F D - -
pG3041 (596) G F D F E D Y L T F F D E T F D P S Q L M G N E D V F F D Q
pG3832 (partial) (592) - - - - - - - - - - - - - - - - - - P F F F L L S L C F C Y H S V
pG515 (20) T - - - - - - - - - - - - - - - - - - N S I Q T S S T C D S F G S S
pG2053 (10) T - - - - - - - - - - - - - - - - - - N S I E N S S T C D S F G S S
pG516 (22) T - - - - - - - - - - - - - - - - - - I S I Q T L S T C P S F G S S
pG517 (24) T - - - - - - - - - - - - - - - - - - N S I G T S S T C A S F A S S
pG513 (597) E Q I P Y E P - - - - - - - - - - - - - - Q N L S S C N K I N - -
pG960 (598) A Q L Q Y G S - E G G A S G W P S D T N S Y Y S D L V Q - -
pG3834_B_rapa (599)
pG1455 (600) S G S Q Q F V P D I L A S R W V S E Q N V D S K E A V E I L
pG3805_O_sativa (601) P T E D I I A Q Y P I K V T A D N S G E A G H R M T D P T D
pG958 (602) I P I E D I W R Y H N D N Q E Q E H H D Q D G M D V N N N N
pG1924 (603) - D K D D S - - - - - - -
pG518 (604) G N I E I D D F F S F E N Q A Q - - - D N D N S N V T P N -
pG3808_O_sativa (605) Y - V Q D A A A A G G A G - -
pG3833_G_max (606) S - N M S N N G F E P E -
pG523 (607) - N R R Q N - - - - - - -
pG514 (608) - N R R Q S - - - - - - -
pG3806_O_sativa (609) -
pG526 (610) - L V S V S - - - - - - -
pG1454 (611) - L K R T L P V P - -

FIG. 27R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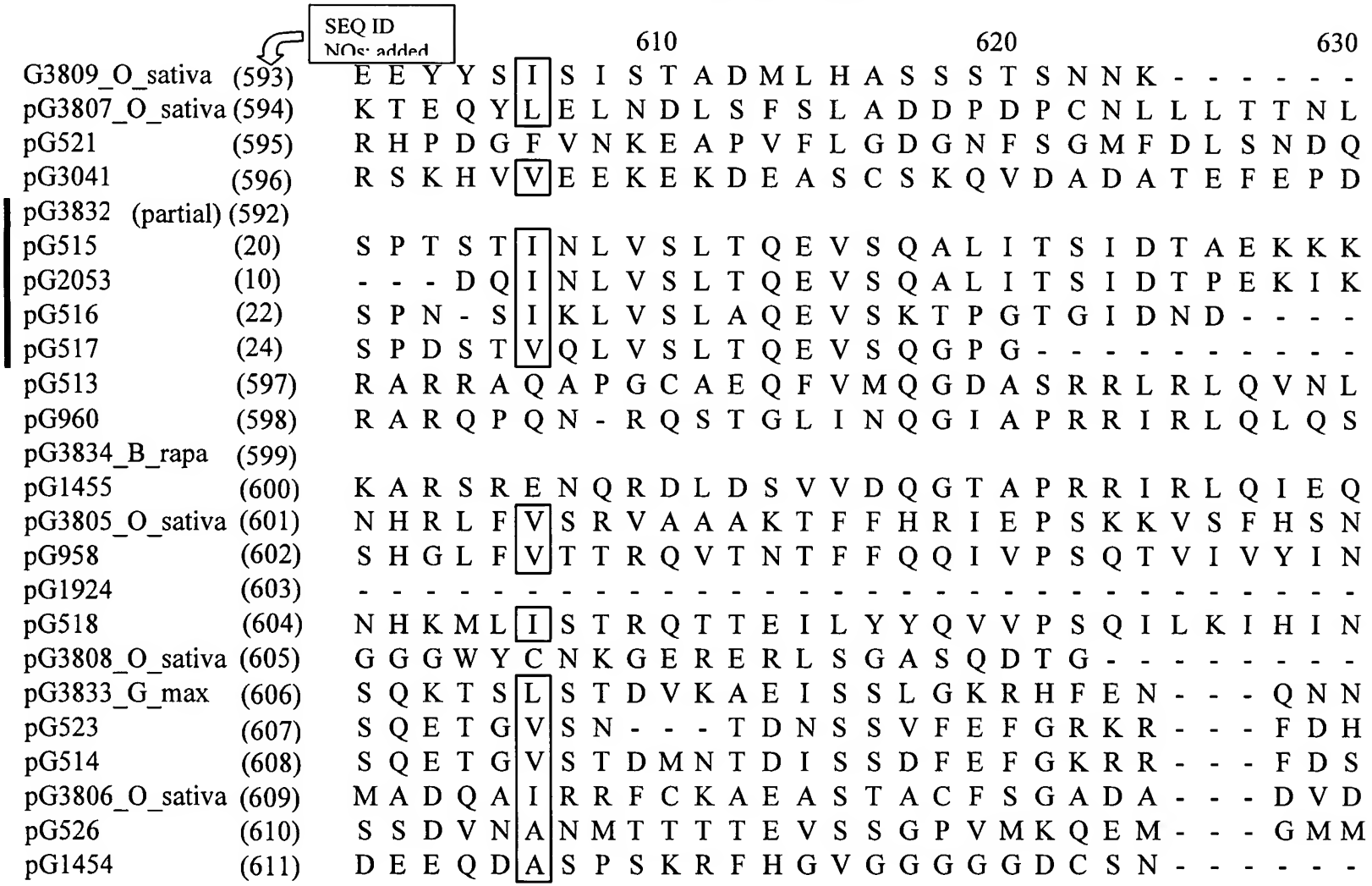
pG3807_O_sativa (594)
pG521 (595)
pG3041 (596)
pG3832 (partial) (592)
pG515 (20)
pG2053 (10)
pG516 (22)
pG517 (24)
pG513 (597)
pG960 (598)
pG3834_B_rapa (599)
pG1455 (600)
pG3805_O_sativa (601)
pG958 (602)
pG1924 (603)
pG518 (604)
pG3808_O_sativa (605)
pG3833_G_max (606)
pG523 (607)
pG514 (608)
pG3806_O_sativa (609)
pG526 (610)
pG1454 (611)

FIG. 27S

SEQ ID NOs: added

```
                                    580                 590                 600
G3809_O_sativa      (593)   - - - - - - - - - - - - - - - - - - - - - - - - - R H K T M
pG3807_O_sativa     (594)   - - - - - - - - - - - - - - - - - - - E D L I P P T L E V L
pG521               (595)   - - - - - - - - - - - - - - - - - - - - - - D F D Y H N E V
pG3041              (596)   - - - - - - - - - - - - - - L F Q E V E T K E L E K E E T S
pG3832  (partial)   (592)
pG515               (20)    - - - - - - - - - - - - - - - - - - - - - I D Q I K D L Q E
pG2053              (10)    - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG516               (22)    - - - - - - - - - - - - - - - - - - - - - L Y Q I T D L Q E
pG517               (24)    - - - - - - - - - - - - - - - - - - - - - - H Q I D Q T Q H
pG513               (597)   - - - - - - - - - - - - - - - - - - - - D E S K - R G I K I
pG960               (598)   - - - - - - - - - Q E Q M I N H N T E N N L T E G R G I K I
pG3834_B_rapa       (599)
pG1455              (600)   F N Y N V N Q P E Q S S F E Q S H V D R N I S P S N I F E F
pG3805_O_sativa     (601)   - - - - - - - - F A A G F D D V N P N A S F D L Y E K V D V
pG958               (602)   - - - - - - - - L D K N D H E T T S S S C F E V V K K V E V
pG1924              (603)   - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
pG518               (604)   - - - - - - - - - - - - - - - - - S A G F E M I G E E I I V
pG3808_O_sativa     (605)   - - - - - - - - - - - - - - - - - - - - - - - M V H E L L M
pG3833_G_max        (606)   - - - - - - - - - - - - - - - - - - - - - - - - R E M V S V
pG523               (607)   - - - - - - - - - - - - - - - - - - - - - - - - F K T L S I
pG514               (608)   - - - - - - - - - - - - - - - - - - - - - - - - L K T M S V
pG3806_O_sativa     (609)   - - - - - - - - - - - - - - - - - - - - - - - - - H S S G A
pG526               (610)   - - - - - - - - - - - - - - - - - - - - - - - - - Q E T C L
pG1454              (611)   - - - - - - - - - - - - - - - - - - - - - - - - - Y W P V A
```

FIG. 27T


SEQ ID NOs: added
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620
630
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pG3807_O_sativa (594) K T E Q Y L E L N D L S F S L A D D P D P C N L L L T T N L
pG521 (595) R H P D G F V N K E A P V F L G D G N F S G M F D L S N D Q
pG3041 (596) R S K H V V E E K E K D E A S C S K Q V D A D A T E F E P D
pG3832 (partial) (592)
pG515 (20) S P T S T I N L V S L T Q E V S Q A L I T S I D T A E K K K
pG2053 (10) - - - D Q I N L V S L T Q E V S Q A L I T S I D T P E K I K
pG516 (22) S P N - S I K L V S L A Q E V S K T P G T G I D N D - - - -
pG517 (24) S P D S T V Q L V S L T Q E V S Q G P G - - - - - - - - - - -
pG513 (597) R A R R A Q A P G C A E Q F V M Q G D A S R R L R L Q V N L
pG960 (598) R A R Q P Q N - R Q S T G L I N Q G I A P R R I R L Q L Q S
pG3834_B_rapa (599)
pG1455 (600) K A R S R E N Q R D L D S V V D Q G T A P R R I R L Q I E Q
pG3805_O_sativa (601) N H R L F V S R V A A A K T F F H R I E P S K K V S F H S N
pG958 (602) S H G L F V T T R Q V T N T F F Q Q I V P S Q T V I V Y I N
pG1924 (603) -
pG518 (604) N H K M L I S T R Q T T E I L Y Y Q V V P S Q I L K I H I N
pG3808_O_sativa (605) G G G W Y C N K G E R E R L S G A S Q D T G - - - - - - - -
pG3833_G_max (606) S Q K T S L S T D V K A E I S S L G K R H F E N - - - Q N N
pG523 (607) S Q E T G V S N - - - T D N S S V F E F G R K R - - - F D H
pG514 (608) S Q E T G V S T D M N T D I S S D F E F G K R R - - - F D S
pG3806_O_sativa (609) M A D Q A I R R F C K A E A S T A C F S G A D A - - - D V D
pG526 (610) S S D V N A N M T T T T E V S S G P V M K Q E M - - - G M M
pG1454 (611) D E E Q D A S P S K R F H G V G G G G G D C S N - - - - - -

FIG. 27U

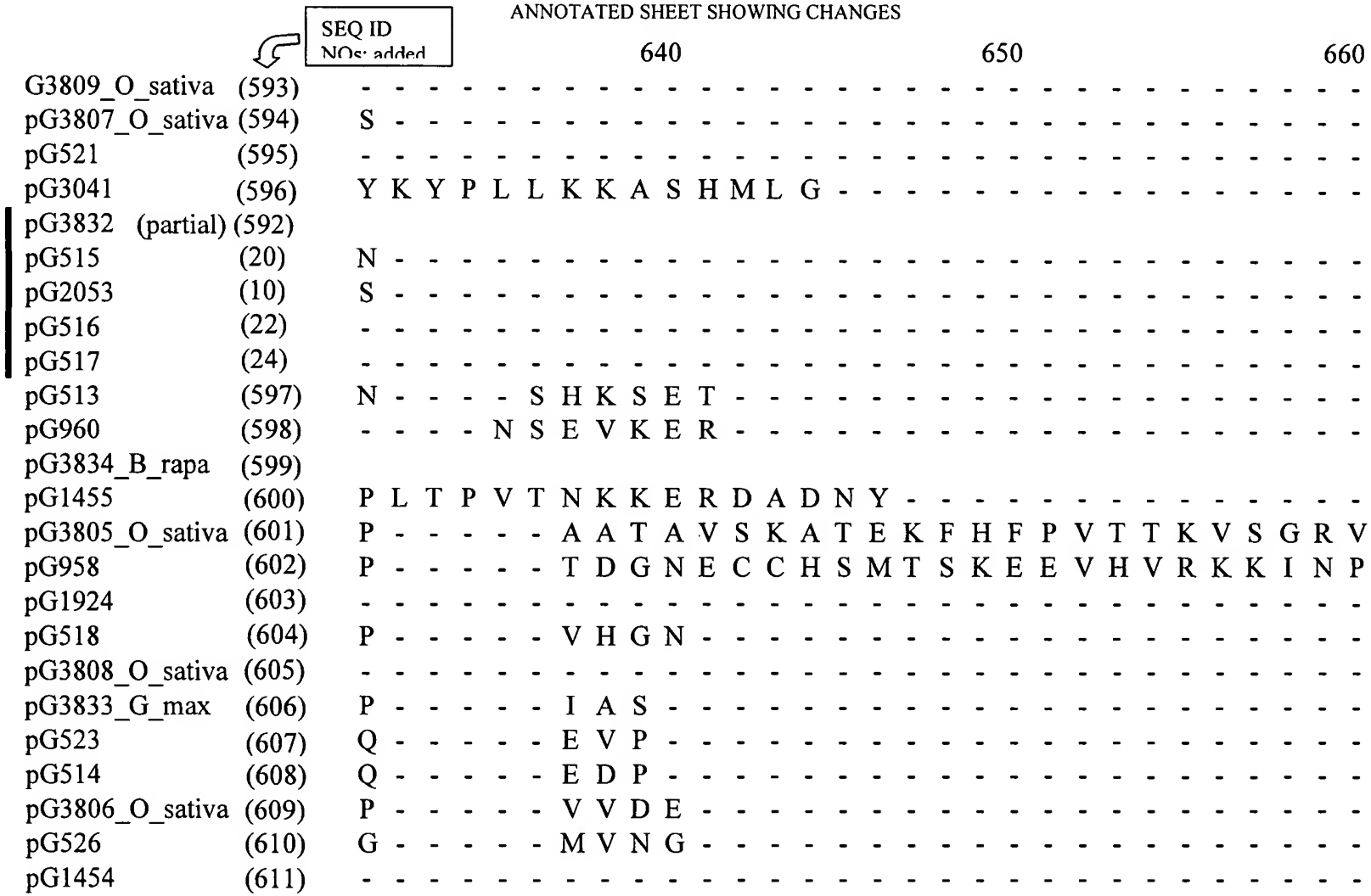
SEQ ID NOs: added
640
650
660
G3809_O_sativa (593)
pG3807_O_sativa (594)
pG521 (595)
pG3041 (596)
pG3832 (partial) (592)
pG515 (20)
pG2053 (10)
pG516 (22)
pG517 (24)
pG513 (597)
pG960 (598)
pG3834_B_rapa (599)
pG1455 (600)
pG3805_O_sativa (601)
pG958 (602)
pG1924 (603)
pG518 (604)
pG3808_O_sativa (605)
pG3833_G_max (606)
pG523 (607)
pG514 (608)
pG3806_O_sativa (609)
pG526 (610)
pG1454 (611)

FIG. 27V

SEQ ID NOs: added

```
                                        670                 680                 690
G3809_O_sativa   (593)  - - - - - - - - - - - - - - - - - - - - - - - - - S T Q I N
pG3807_O_sativa  (594)  - - - - - - - - - - - - - - - - - - - - - - - D Q N H P E L
pG521            (595)  - - - - - - - - - - - - - - - - - - - - V V E L Q D L I Q S
pG3041           (596)  - - - - - - - - - - - - - - - - - - A I P A P L A N A S E F
pG3832 (partial) (592)
pG515            (20)   - - - - - - - - - - - - - - - - - - - P Y D D A Q G T E I G
pG2053           (10)   - - - - - - - - - - - - - - - - - - - P Y D D A Q G T G A G
pG516            (22)   - - - - - - - - - - - - - - - - - - - - - - - A Q G T E I G
pG517            (24)   - - - - - - - - - - - - - - - - - - - - - - - - Q V T V I R
pG513            (597)  - - - - - - - - - - - - - - - - - - - D S T Q L Q F I K K E
pG960            (598)  - - - - - - - - - - - - - - - - - - E E V N E G H T V I P E
pG3834_B_rapa    (599)
pG1455           (600)  - - - - - - - - - - - - - - - - - - E E E D E V Q S A M S K
pG3805_O_sativa  (601)  S I F S K F K A L I R - - - - - - - - - - - - D K F L M M R
pG958            (602)  R I N G V S S T V L G Q W R K F A H V I G F I P M L L L M R
pG1924           (603)  - - - - - - - - - - - - - - - - - - - - - - - - - - - W M Q
pG518            (604)  - - - - - - - - - - - - - - - - - - - - - - E E R T M L M E
pG3808_O_sativa  (605)  - - - - - - - - - - - - - - - - - - - - - - - - - - L T S S
pG3833_G_max     (606)  - - - - - - - - - - - - - - - - - - - - - - - - - A A A V A
pG523            (607)  - - - - - - - - - - - - - - - - - - - - - - - - - S P S S G
pG514            (608)  - - - - - - - - - - - - - - - - - - - - - - - - - S S S T G
pG3806_O_sativa  (609)  - - - - - - - - - - - - - - - - - - - - - - - L L S F P D S
pG526            (610)  - - - - - - - - - - - - - - - - - - - - - - - S K S Y E D L
pG1454           (611)  - - - - - - - - - - - - - - - - - - - - - - - M S S S M M E
```

FIG. 27W

SEQ ID NOs: added

```
                                   700                 710                 720
G3809_O_sativa      (593)  F S S I F E P - - - - - - - - - - - - - - - - - - - - - - -
pG3807_O_sativa     (594)  E T R F E Q G S - - - - - - - - - - - - - - - - - - - - - -
pG521               (595)  P T P H P P - - - - - - - - - - - - - - - - - - - - - - - -
pG3041              (596)  P T K D A A I R L H A A Q S S - - - - - - - - - - - - - - -
pG3832    (partial) (592)
pG515               (20)   E H K L G Q E T - - - - - - - - - - - - - - - - - - - - - -
pG2053              (10)   G Q K L G Q E T - - - - - - - - - - - - - - - - - - - - - -
pG516               (22)   E H K L G Q E T - - - - - - - - - - - - - - - - - - - - - -
pG517               (24)   E H K L G E E S - - - - - - - - - - - - - - - - - - - - - -
pG513               (597)  V K D T T T E T M T K G C G - - - - - - - - - - - - - - - -
pG960               (598)  A K E A A A K Y S E K S G S - - - - - - - - - - - - - - - -
pG3834_B_rapa       (599)
pG1455              (600)  V V E E E P A N L S A Q G T A - - - - - - - - - Q R R I R L
pG3805_O_sativa     (601)  P S H S Y Q R L G S K E T T V N E L L Q I V S L L L A P K Q
pG958               (602)  C V H R G N S N K N R - - - - - - - - - G S E G Y S R Q P T
pG1924              (603)  F I T D D A - - - - - - - - - - - - - - - - - - - - - - - -
pG518               (604)  E D S D D S - - - - - - - - - - - - - - - - - - - - - - - -
pG3808_O_sativa     (605)  E V N P G E - - - - - - - - - - - - - - - - - - - - - - - -
pG3833_G_max        (606)  P M D L A T - - - - - - - - - - - - - - - - - - - - - - - -
pG523               (607)  P V D L E P - - - - - - - - - - - - - - - - - - - - - - - -
pG514               (608)  P V D L E P - - - - - - - - - - - - - - - - - - - - - - - -
pG3806_O_sativa     (609)  I T D Y S Y - - - - - - - - - - - - - - - - - - - - - - - -
pG526               (610)  C D L R G D - - - - - - - - - - - - - - - - - - - - - - - -
pG1454              (611)  E T P P L M Q - - - - - - - - - - - - - - - - - - - - - - -
```

FIG. 27X

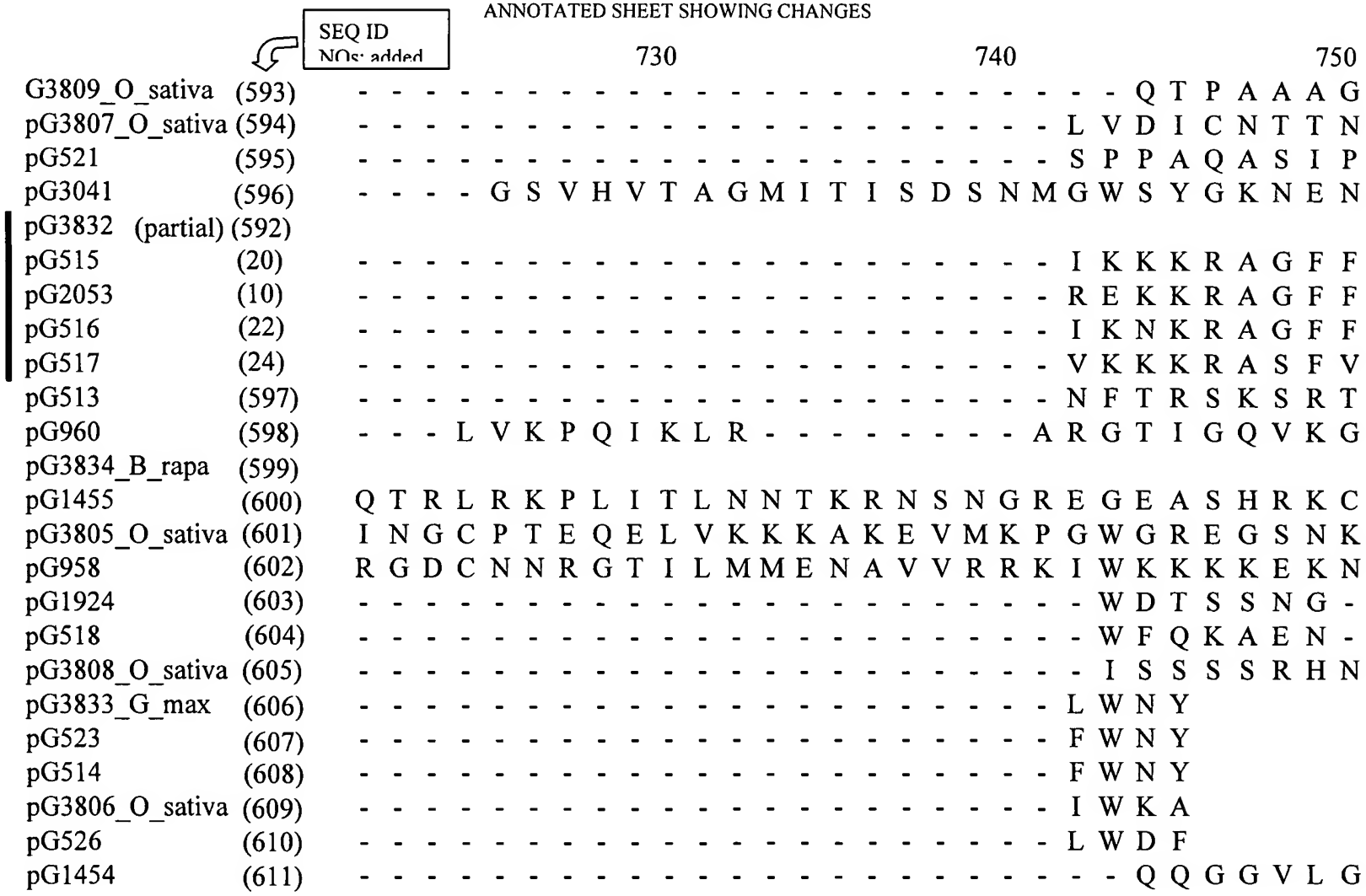
SEQ ID NOs: added
730
740
750
G3809_O_sativa (593) - Q T P A A A G
pG3807_O_sativa (594) - L V D I C N T T N
pG521 (595) - S P P A Q A S I P
pG3041 (596) - - - - G S V H V T A G M I T I S D S N M G W S Y G K N E N
pG3832 (partial) (592)
pG515 (20) - I K K K R A G F F
pG2053 (10) - R E K K R A G F F
pG516 (22) - I K N K R A G F F
pG517 (24) - V K K K R A S F V
pG513 (597) - N F T R S K S R T
pG960 (598) - - - L V K P Q I K L R - - - - - - - - - - A R G T I G Q V K G
pG3834_B_rapa (599)
pG1455 (600) Q T R L R K P L I T L N N T K R N S N G R E G E A S H R K C
pG3805_O_sativa (601) I N G C P T E Q E L V K K K A K E V M K P G W G R E G S N K
pG958 (602) R G D C N N R G T I L M M E N A V V R R K I W K K K K E K N
pG1924 (603) - W D T S S N G -
pG518 (604) - W F Q K A E N -
pG3808_O_sativa (605) - I S S S S S R H N
pG3833_G_max (606) - L W N Y
pG523 (607) - F W N Y
pG514 (608) - F W N Y
pG3806_O_sativa (609) - I W K A
pG526 (610) - L W D F
pG1454 (611) - Q Q G G V L G

FIG. 27Y

SEQ ID NOs: added

760 770 780

G3809_O_sativa	(593)	H Q L M S S H N D D T S I
pG3807_O_sativa	(594)	A T I S N A A C S A S T V G D H V T
pG521	(595)	D - - - D S R S N G Q T K D D
pG3041	(596)	L D L I L S L G L V Q G N T A P E K S G N S S A W A M L I F
pG3832	(partial) (592)	
pG515	(20)	H R M I Q K F V K K I H L C S S I S R T
pG2053	(10)	H R M I Q I F V K K I H Q C S S I S R T
pG516	(22)	H R M I Q K F V K K I H L R T
pG517	(24)	Y R M I H R L V K K I H Q C Y S I S R T
pG513	(597)	S F I F K K I A A M G C S Y R G L F R V G - - - - - - - - - -
pG960	(598)	E R F A D D E V Q V Q S T K R E R E R - - - - - - - - - - -
pG3834_B_rapa	(599)	
pG1455	(600)	E M Q E K E D I S S S S S W Q K Q K K S L V Q F S S V V I I
pG3805_O_sativa	(601)	L W L P L S K G K G I S S M F L S G K W T - - - - - - - - -
pG958	(602)	- - M V D E Q G F R F Q D S F V L K K L G - - - - - - - - -
pG1924	(603)	- - - - A A M G H G Q G V Y
pG518	(604)	- - - - V A K M K L K Q I S L V A K R Y Y - - - - - - - - -
pG3808_O_sativa	(605)	A W I I T T R P S G P I E I F I H H H
pG3833_G_max	(606)	
pG523	(607)	
pG514	(608)	
pG3806_O_sativa	(609)	
pG526	(610)	
pG1454	(611)	D G L F R T T S Y Q L P G L N W Y S S

FIG. 27Z

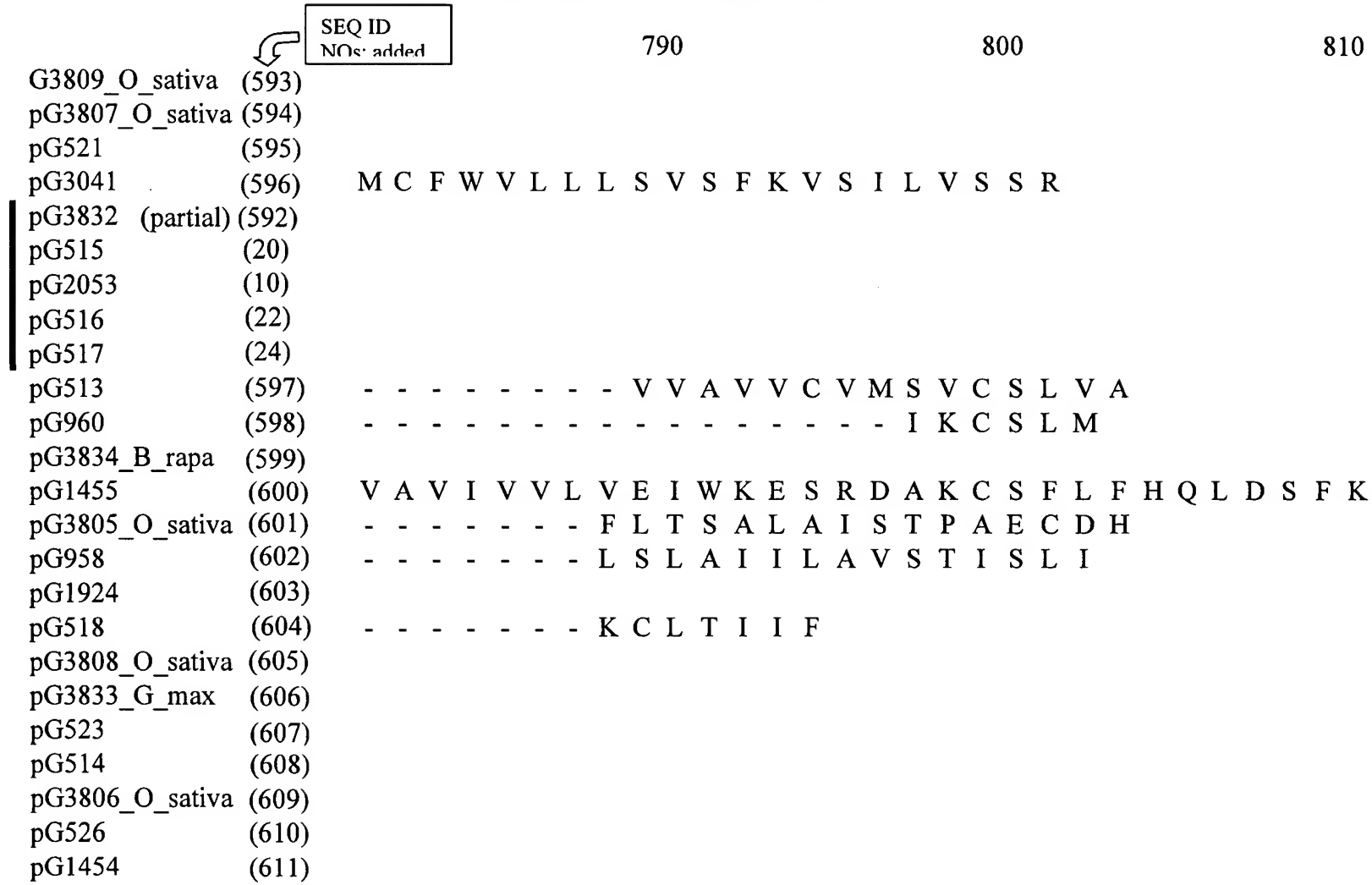
SEQ ID NOs: added
790
800
810
G3809_O_sativa (593)
pG3807_O_sativa (594)
pG521 (595)
pG3041 (596) M C F W V L L L S V S F K V S I L V S S R
pG3832 (partial) (592)
pG515 (20)
pG2053 (10)
pG516 (22)
pG517 (24)
pG513 (597) - - - - - - - - - V V A V V C V M S V C S L V A
pG960 (598) - - - - - - - - - - - - - - - - - - I K C S L M
pG3834_B_rapa (599)
pG1455 (600) V A V I V V L V E I W K E S R D A K C S F L F H Q L D S F K
pG3805_O_sativa (601) - - - - - - - - F L T S A L A I S T P A E C D H
pG958 (602) - - - - - - - - L S L A I I L A V S T I S L I
pG1924 (603)
pG518 (604) - - - - - - - - K C L T I I F
pG3808_O_sativa (605)
pG3833_G_max (606)
pG523 (607)
pG514 (608)
pG3806_O_sativa (609)
pG526 (610)
pG1454 (611)

FIG. 27AA

SEQ ID NOs: added

820 830 840

G3809_O_sativa (593)
pG3807_O_sativa (594)
pG521 (595)
pG3041 (596)
pG3832 (partial) (592)
pG515 (20)
pG2053 (10)
pG516 (22)
pG517 (24)
pG513 (597)
pG960 (598)
pG3834_B_rapa (599)
pG1455 (600) G M F T
pG3805_O_sativa (601)
pG958 (602)
pG1924 (603)
pG518 (604)
pG3808_O_sativa (605)
pG3833_G_max (606)
pG523 (607)
pG514 (608)
pG3806_O_sativa (609)
pG526 (610)
pG1454 (611)

FIG. 27BB

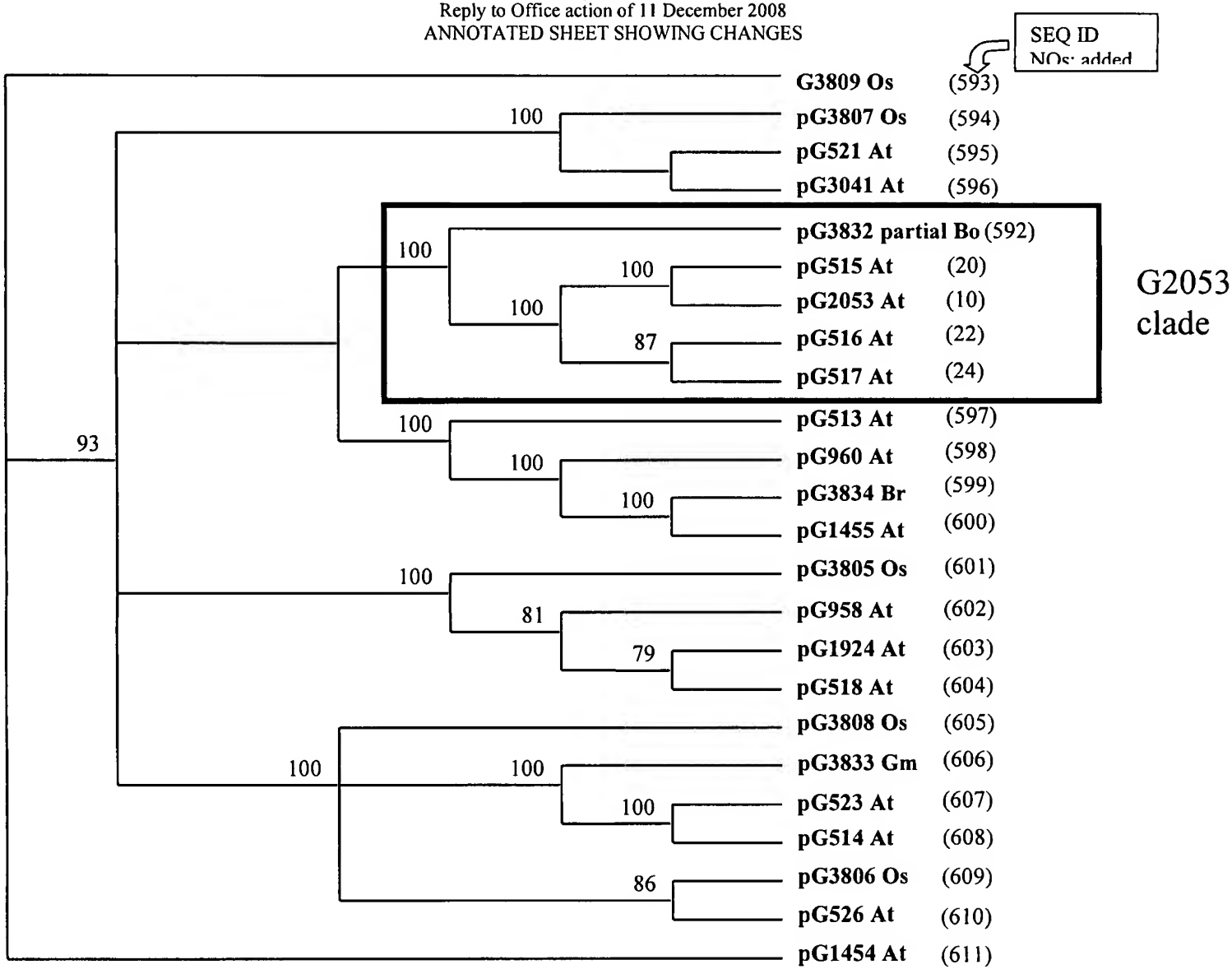
SEQ ID NOs: added
G3809 Os (593)
pG3807 Os (594)
pG521 At (595)
pG3041 At (596)
pG3832 partial Bo (592)
pG515 At (20)
pG2053 At (10)
pG516 At (22)
pG517 At (24)
pG513 At (597)
pG960 At (598)
pG3834 Br (599)
pG1455 At (600)
pG3805 Os (601)
pG958 At (602)
pG1924 At (603)
pG518 At (604)
pG3808 Os (605)
pG3833 Gm (606)
pG523 At (607)
pG514 At (608)
pG3806 Os (609)
pG526 At (610)
pG1454 At (611)
100
100
100
100
87
100
100
100
93
100
81
79
100
100
100
86
G2053 clade

FIG. 28